Aero

# Southern FLIGHT

Including MODERN AIRPORTS

JANUARY 1950

35 cents

LIBRARY OF CONGRESS
JAN 24 1950

TEMCO BUCKAROO

Convair XP5Y U. S. Navy Flying Boat

# New U.S. Aircraft Engine

## Navy sponsors most powerful propeller-type engine ever cleared for flight!

A new American aircraft engine — the most advanced type in the world — is now revealed by the U. S. Navy. It's the new Allison XT40 *turbo-prop* which develops more horsepower per pound of weight, with good fuel economy, than any propeller-type engine ever built by any nation. The engine currently is rated at 5500 horsepower.

The new Allison *turbo-prop* will enable any propeller-driven aircraft — for the military services or commercial airlines — to fly faster and carry increased pay loads over longer distances at higher altitudes.

This outstanding performance is accomplished through the engine's high power, small size and light weight. Yet, fuel economy comparable to the best present-day commercial engines is retained.

Horsepower-to-weight ratio, including extension shafting and reduction gear, is double that of our best present-day reciprocating engines — actually more than two horsepower per pound of engine weight.

The new Allison XT40, consisting of two super-powered gas turbines, achieves these important results through high-compression ratio and the flexibility of the twin power plant.

By outperforming reciprocating engines now in use, this new *turbo-prop* engine becomes a highly valuable stablemate for the turbo-jet engines which power today's very high speed military airplanes. Both these turbine-type engines use the same low-grade, readily available fuel; they do not need high-octane aviation gasoline.

The ease and flexibility of installation of this type engine are demonstrated by its first application in the Navy XP5Y Convair flying boat. Designers can utilize this compact, more powerful engine in all types of aircraft — both military and commercial — to gain improved range and performance.

Once more Allison, a world leader in aircraft engine development and production, has made an outstanding contribution to help keep America first in the air.

**ALLISON XT40 TURBO-PROP**

*Compare the small size of this engine, developing 5500 horsepower, with the man in the photograph above*

Allison

**DIVISION OF INDIANAPOLIS, INDIANA**

GM GENERAL MOTORS

Builder of the famous J33 and J35 turbo-jet aircraft engines

TL501
.S665

# Let's Talk About Our Pledge for 1950

**DURING more than twenty years serving the aircraft owner and the aviation industry, the J. D. REED COMPANY has been fully conscious of its responsibility *"to never build a customer up to a let-down."* We re-pledge our Company to the fullest dispatch of this responsibility in 1950 as we have during past years.**

• Nothing is more costly or useless than a piece of equipment, airplane or otherwise, that cannot be used when needed. The only way to guarantee 100 per cent aircraft utility is constant attention to every minute detail of service by qualified technicians and the kind of facilities you find with J. D. Reed. For urgent and special work we are geared to a 24-hour schedule to better serve you in emergencies.

• No job is too small or too minor for our complete attention in order that airplane owners can **depend** on their equipment 24 hours of the day, 52 weeks in the year.

**J. D. REED SERVICES**

- ★ Beechcraft Sales and Service
- ★ Super Aircraft Repair Station
- ★ Aircraft Parts
- ★ Gasoline and Storage
- ★ Aircraft Radio Distributors and Service
- ★ Charter Service
- ★ Air Ambulance Service
- ★ Aviation Novelties

**J.D. REED CO. Inc.**
SALES SERVICE
Beechcraft
**DISTRIBUTOR**
HOUSTON
Municipal Airport
DALLAS
Love Field
NEW ORLEANS
New Orleans Airport

# The Birdmen's Perch

## WHO WILL BE 1950 AEROBATIC CHAMPION?

S. C. Huffman, General Manager of the All-American Air Maneuvers, expects nearly two dozen of the nation's top aerobatic flyers to compete for the Gulf-National Aerobatic Championship Trophy.

This means that last year's 1st place winners—Bevo Howard and Betty Skelton—will find a qualified field of entrants shooting at the titles they now hold.

The Gulf-sponsored contest is open to all—both men and women—on an even basis with no restriction on the type or make of plane used. Qualifying trials will be held at Miami, January 10 to 12. The top *ten*-point scorers will compete for the title and prizes at the Maneuvers (January 13-15).

A purse of $3,500—to be split $1,750 for 1st place, $875 for 2nd place, $525 for 3rd place, and $350 for 4th place—awaits the winners. Judging will be handled by well-known former aerobatic aces.

The way things are shaping up, it looks like the best contest ever. Want to get in? Well, there's still time, but better not wait too long to write to get the contest rules and an official entry blank. A note to All-American Air Maneuvers, Inc., Room 415 Professional Building, Miami, Florida, will bring you complete details by return mail.

### HEY . . .

Do you know that water is wet? That night follows day? That 1 and 1 add up to 2?

You do? Well then, here's another fact equally obvious to bright pilots: rings and valves remain free longer, time between overhaul periods can be greatly extended, and engine lubrication is more even and more efficient when you use Gulfpride Aviation Oil—Series D!

Why-because? Because Gulfpride Aviation Oil—Series D—the world's finest detergent dispersant oil for horizontally opposed engines, is the only aviation oil put through Gulf's exclusive Alchlor process. This is the super-important process that removes extra carbon and sludge formers!

### LITTLE KNOWN FACTS DEPT.

**Question:** What's better than inheriting a quadrillion dollars, the key to a Sultan's harem, and being blessed with a spiritual contract that positively provides you with a landing strip whenever and wherever your engine cuts out?

**Answer:** Obviously, it's a handsome, coveted, engraved-type commission as Perch Pilot.

This fact—with proof—earned a Perch Pilot commission (br) for William E. Wood, of Hudson, Mass.:

*"A Beechcraft Bonanza could cruise continuously for over 2½ days on an equal amount of fuel as that consumed by the X1 in 2½ minutes!"*

See—it's as simple as flying into a mountain peak in a fog. You other Perch Pilot potentials who are spending your days in obscurity, rush your LKF'S—with Proof—to Gulf Aviation Department, Gulf Bldg., Pittsburgh 30, Pa.

**Gulf Oil Corporation . . . Gulf Refining Company . . . Marketers of**

GULF **GULF AVIATION PRODUCTS**

PUH-LEEZE DON'T TIGHTEN FROZEN SPARK PLUGS TO BREAK THEM LOOSE!
IF YOU DO, YOU MAY BREAK LOOSE THE INSERT IN THE CYLINDER.
KRACK!
IT'S THINGS LIKE THIS THAT SPOIL THE FUN OF FLYING WITH THAT POWERFUL···
GULF AVIATION GASOLINE
GULF

# The NEW 1949

# Aircraft Year Book

**OFFICIAL PUBLICATION OF THE AIRCRAFT INDUSTRIES ASSOCIATION**

to be published on January 15, 1950

Insure Delivery by Ordering NOW!

**For 30 Years THE Standard Reference of United States Aviation**

- More than 300 American airplanes described in detail — photographs and three-view scale drawings.
- Historic planes and the finest chronology of aviation events ever published.
- Detailed report on aviation by-products — from pie pans to movie cameras.
- 29 pages of aviation records and the men who made them.
- Handy reference for model makers.
- A complete review of developments in the Armed Services, the aircraft industry and the airlines.
- Thumbnail biographies of 1,000 present-day aviation personalities.
- Complete current bibliography of aviation books.
- A preview of tomorrow in the air — jets, record-breaking speeds, electronic safety devices.
- Completely indexed.
- An invaluable reference to sales possibilities.

**ORDER NOW**

THE LINCOLN PRESS, INC.
Publishers, THE AIRCRAFT YEAR BOOK
Warner Building, Washington 4, D. C.

**$6 a copy**

Please Reserve_____ Copies of THE AIRCRAFT YEAR BOOK

NAME (Please Print) STREET CITY ZONE STATE

☐ Check

☐ Money Order

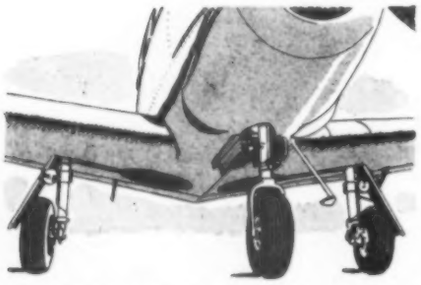
_____
(SIGNED)

**THE MOST COMPLETE AVIATION REFERENCE EVER COMPILED**

# Navion Service at Its Best

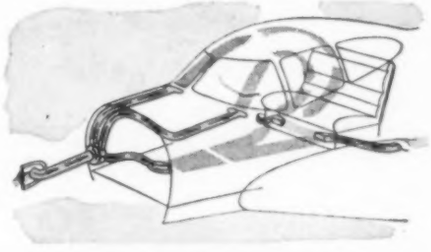
AS A FINE AIRPLANE, your Navion needs and deserves the finest servicing available. By keeping it always at the peak of performance, the Factory-Authorized Navion Service Operators listed on this page are your assurance of Navion's best transportation values.

Engine and accessories . . . landing gear . . . instruments . . . and cabin air and heating will always function trouble-free when serviced and overhauled with GENUINE PARTS AND FACTORY-TRAINED KNOW-HOW. With proper maintenance you get the most out of your Navion.



**TROUBLE-FREE LANDING GEAR and brakes always respond smoothly and swiftly when properly maintained. Let us modernize your Navion by installing Ryan landing gear doors.**

*Right now is a good time to ask the factory-equipped service institutions listed below to check your Navion for necessary maintenance or modernization with factory-produced kits.*



**THE BEST THERE IS IN COMFORT is yours in a Navion cabin. We use Ryan's latest developments for improved circulation of fresh or heated air, noise-proofing and seating.**

## These Factory-Authorized Service Operators Feature Ryan Modernization Service

### Florida
**WOOTTEN AVIATION INDS.**
Municipal Airport, Orlando

### Illinois
**HOWARD AVIATION, INC.**
Mt. Hawley Airport
Peoria, Illinois

### Louisiana
**LOUISIANA AIRCRAFT**
Municipal Airport
Baton Rouge, Louisiana

### Minnesota
**VAN'S AIR SERVICE, INC.**
Whitney Memorial Airport
St. Cloud, Minnesota

### New Jersey
**MALLARD AIR SERVICE, INC.**
Teterboro Air Terminal
Teterboro, New Jersey

### New York
**BUFFALO AERO. CORP.**
Hangar 1, Buffalo Airport
Buffalo, New York

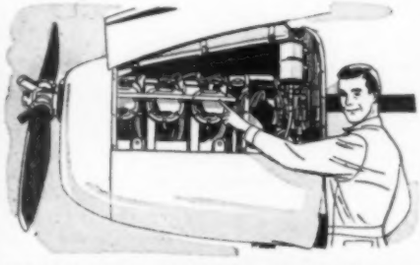
### Pennsylvania
**AVIATION CONSULTANTS, INC.**
Reading Municipal Airport
Reading, Pennsylvania

### Texas
**GENERAL AERONAUTICS, INC.**
Meacham Field
Fort Worth, Texas

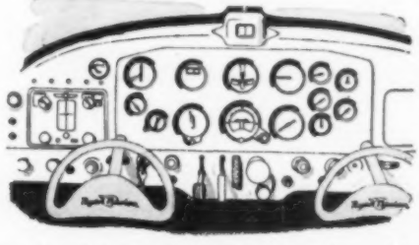
### Washington and Alaska
**WASHINGTON AIRCRAFT & TRANSPORT CORP.**
Boeing Field
Seattle, Washington

### Mexico
**MORGAN & WALTZ, SUCS., S.A.**
Monterrey 101-410
Mexico City, Mexico

### Puerto Rico
**DORADO AIRFIELD**
Dorado, Puerto Rico
(Branch Off.: International Terminal, San Juan)



**FOR MORE DEPENDABLE POWER, let us keep your engine and its accessories in first-class condition with periodic checks and overhaul. Our engine specialists use only genuine parts.**



**RELY ON YOUR INSTRUMENTS but make certain they are always in condition to function accurately. Our thorough instrument checks and servicing eliminate chance and doubt.**

**BE SURE — RELY ON RYAN-AUTHORIZED NAVION SERVICE**

JANUARY, 1950 VOL. XXXIII, NO. 1

# Southern FLIGHT

Including MODERN AIRPORTS

**COVER:** Texas Engineering & Manufacturing Company's new T-35 Buckaroo military trainer, an improved version of an earlier trainer developed from the popular Temco Swift. It is powered by a 145-hp. Continental engine and equipped with a controllable automatic constant-speed propeller. First Buckaroo is being delivered to the Philippines for technical tests by the Philippine Air Force in charge of P. I. (Pappy) Gunn, former USAF colonel now technical adviser to PAF and vice-president of Philippine Air Lines. Later, Gunn will schedule tests by other Far East nations which are expected to order the Buckaroo, which is also being considered by USAF for production.

(Temco Photo.)

**Air Report**—SIGNIFICANT TRENDS AND NEWS - - - - - - - - 7
**Just Among Ourselves**—EDITORIALS - - - - - - - - - - 8
**Altimeters for Safety**—BY J. H. (DOC) DE CELLES - - - - - 10
**New for 1950**—BY TOM ASHLEY - - - - - - - - - - - 12
**An Airplane for Agriculture**—BY GEORGE E. HADDAWAY - - - 15
**Solo Flight**—BY ERIC WAHLEEN - - - - - - - - - - - 16
**The Aircraft Industry-1949-1950**—
BY ADMIRAL DE WITT C. RAMSEY - - - - - - - - - - - 18
**Can Airmen Survive the Theorists?**—BY CHARLES A. LINDBERGH 21
**Are You a V. A. P?**—BY JIM WHEELER - - - - - - - - - 24
**Airmen's Calendar** - - - - - - - - - - - - - - - - 29
**This Month's Modern Airport**—MEXICO CITY - - - - - - 31
**Questions and Answers for Airport Operators** - - - - - - 32

*Published Monthly by*

AIR REVIEW PUBLISHING CORPORATION

P. O. Box 750, 1901 McKinney Avenue, Dallas 1, Texas

GEORGE E. HADDAWAY
Editor and Publisher

TOM ASHLEY
Managing Editor

E. H. PICKERING
Editorial Research

FRED N. STONES
Business Manager

L. M. ROBERTSON
Circulation Manager

## AIR Report

Significant Trends and News

### Feeder Operations Increase

Business is picking up with the small-plane, short-haul feeder airline operators. Central, whose operations were covered in a **Southern Flight** special section last month, announces a November per-mile cost reduction to about 32 cents with Bonanzas. Mid-West Airlines, operating seven 190 Cessnas in Iowa, Nebraska, South Dakota and Minnesota, will take delivery of its eighth plane in January. The company is operating 12 flights a day over 1,200 route miles, having started scheduled services over a portion of its routes on December 21. South Central Air Transport, headed by Ray Ellis of Fayetteville, Arkansas, has applied for a certificate of Public Convenience and Necessity for routes covering a six state area centered in the Ozark region. Howard Showalter, Jr., Winter Park, Fla., has applied to CAB for single-engine airline service connecting many Florida cities.

### Statistics Chart Conditions

Some observers believe personal aircraft sales and production will level off during 1950 after dropping to less than 3,400 new plane deliveries in 1949 as compared to about 7,000 in 1948. CAA reports total U. S. civil aircraft registrations dropped from 95,997 in 1948 to 92,700 in 1949. Only 45,000 student permits were issued last year as compared with 117,725 in 1948, and private pilot certificates issued were down to 30,000 as against 86,838 for 1948. Commercial and airline transport pilot certificates dropped also, 8,151 to 7,300 and 1,100 to 1,000.

### Dallas Beech Sales to Gray

J. R. Gray, Inc., has acquired from J. D. Reed Company the Beechcraft distributorship for the Dallas-Fort Worth area. Reed will now concentrate on Beechcraft distributorships and service in the Houston and New Orleans areas. Jim Gray, head of the new firm and former Lockheed test pilot, established Dallas Aircraft Sales as a Beech distributor in 1946-47, after which it was acquired by Reed. He will maintain the same Southwest Airmotive Love Field office and service facilities which were operated by Reed.

### RTCA Awarded Collier Trophy

The 1949 Collier Trophy has been awarded to the Radio Technical Commission for Aeronautics for its long-range air traffic control plan.

(*Continued on page* 28)

SOUTHERN FLIGHT, January, 1950, Vol. 33, No. 1. Published monthly. Publication office, P. O. Box 750 (1901 McKinney Ave.) Dallas 1, Texas Price 35c single copy. Subscription rates: United States, one year $3.00; two years, $4.00; three years, $5.00. Established February, 1934. Entered as second-class matter at the Post Office, Dallas, under the act of March 3, 1879. Copyright, 1950, by Air Review Publishing Corporation.

# Just among ourselves

EDITORIALS

## DIME A DOZEN EXPERTS

PRACTICALLY everybody in or near aviation has been following with keen interest the reams of material issuing forth as a result of recent air accidents, which have inspired a veritable flood of damaging publicity as well as a plethora of opinion, most of which serves to remind us we have more aviation experts in this country than Mr. Carter has pills. Just let some catastrophe befall any phase of aviation and watch the experts jump out of the weeds with their revolutionary nostrums and "I-Told-You-So's."

The tragic collision between the DC-4 and the surplus P-38 at Washington produced the largest headlines and the greatest amount of "expert" testimony.

Opinion on air traffic control problems is coming from two distinct sources—from the handful of real, genuine experts who have fought the long, up-hill fight for adequate air traffic control facilities for many years, and from the self-appointed experts who are making the most noise but the least sense. Unfortunately many of them write for the public prints and have gone off half-cocked with the wildest sort of proposals. One mid-western daily, for example, thinks that every airplane should undergo inspections before every take-off, that doctors should be present at every airport to examine and test the blood pressure and heart condition of pilots before they are allowed to pilot planes and that no planes should be permitted to fly in bad weather! Editorializing on these proposals, the newspaper went on to say that if these things were done, the elimination of 95 per cent of all airplane accidents would result!

From the self-appointed experts within and on the fringe of the industry come proposals that all private and military craft must be banned from busy air terminals. It is not inconceivable that in such an atmosphere of hysteria, ridiculous restrictions might be forced upon that large and growing segment of executive airplane owners, whose safety record is as good or better than the excellent certificated airline safety records. Few people realize that 1949, despite the spectacular year-end accidents, was one of the safest years in airline history. Although 93 passengers were killed in four domestic airline accidents during 1949, compared with 83 in five accidents during 1948, the fatality rate equalled last year's 1.3 passenger fatalities per 100,000,000 passenger miles flown, close to the all-time low of 1.2.

This nation, and the aviation industry in particular, has paid through the nose for the surplus aircraft disposal policies established in 1944 and 1945. The accident at Washington National caused by the collision of a war-weary P-38 with a commercial airliner is only one of many such tragic, fatal occurrences involving surplus equipment. If any one fact is clear at this stage of the official investigations, surely it's the fact that such flights as the Bolivian Air Force pilot was making that day have no place on any busy airport. There is no doubt but that we must tighten up all along the line, continue to develop and improve air traffic control equipment and procedures and above all become more alert no matter where or how or what we fly.

But let's not permit the experts to expert us right out of the air. Public opinion is a mighty force. And far too many half-baked proposals in the wake of recent accidents are selling aviation down the river. ★ ★ ★

## ANNUAL NEW MODELS AREN'T THE ONLY ANSWER

A NEW year always brings up the never-ending clamor for something new, something different. This applies to many products, especially to the airplane. It is stimulated mainly by the appearance in December of so many promotions of automobiles, for which new-model merchandising has proved so effective down through the years. But in private plane merchandising, new-model promotion is dependent on factors which do not always make for a practical application of automotive sales devices.

This issue contains a line-up of 1950 models launched by some of the manufacturers. Other new models are yet to be announced. In the main all so-called 1950 models are or will be improved versions of accepted basic designs instead of model change-overs according to the calendar.

It all adds up to emphasize the basic truth that the lightplane industry is still fundamentally an engineering industry, rather than a merchandising industry. It has yet to engineer the ultimate in high-utility design capable of market acceptance in the volume required before mass merchandising can approach that of the automobile industry. Hours of conferences and reams of written material have been devoted to speculation on lightplane marketing possibilities. Everybody has echoed the needs for radical designs, lower prices, higher speeds, lower speeds, better salesmanship, more business efficiency and many other refinements. But the difficulty is in finding the most practical starting point on the road to what is vaguely called mass flying and mass production.

Lightplane merchandising problems are too involved for miracle-makers. Such progress as is being made is a slow but genuine improvement and the most effective accelerator we can recommend is redoubled effort among aviation's few qualified merchandisers to sell and service the excellent products they have today. ★ ★ ★

# Good people to do Business with

We're proud and privileged to be doing aircraft radio installations and servicing for some of aviation's finest folks. So you'll know who they are, this salute to our valued customers lists them. To the good people we of Associated Radio serve, this is our New Year's pledge to justify your continued confidence and business during 1950.

## Associated Radio LOVE FIELD • DALLAS

Abilene Aviation Service, Abilene, Texas; Acme Foundry and Machine Works, Blackwell, Okla.; Aero Patrol & Survey Co., Oklahoma City, Okla.; Aero-Van Express, Inc., Burbank, Calif.; Aircraft Conversion Co., Clinton, Okla.; Aircraft Radio Service, Phoenix, Arizona; Alabama Dry Dock & Shipbuilding Co., Mobile, Ala.; Algord Oil Co., Dallas, Texas; American Liberty Oil Co., Dallas, Texas; American Supply Co., Alexandria, La.; Atlantic Refining Co., Dallas, Texas; Frank E. Austin, Jr., Dallas, Texas; Henry Ayres, Paris, Texas; Barney's Music Shop, Dallas, Texas; Barnsdall Oil Co., Tulsa, Okla.; Bauer-Smith Dredging Co., Port Lavaca, Texas; Beasley Construction Co., Dallas, Texas; Bechtel-Conyes Corp., San Francisco, Calif., and Houston, Texas; Paul E. Bell, Inc., Cleveland, Ohio; Bentsen Brothers, Mission, Texas; Big Chief Drilling Co., Shreveport, La.; R. L. Bowen, Fort Worth, Texas; Braniff Airways, Inc., Dallas, Texas; H. D. Bray, Albuquerque, New Mexico; Brinkerhoff Drilling Co., Dallas, Texas; Brown & Root, Houston, Texas; Tex-O-Kan Flour Mills Co., Dallas, Texas; Byrd-Frost, Inc., Dallas, Texas; Cabot Carbon Co., Pampa, Texas; The California Co., Denver, Colo., and New Orleans, La.; Cameron Air Service, Lawton, Okla.; W. K. Cannon, Houston, Texas; C. Carruth, Harlingen, Texas; The Carter Oil Co., Tulsa, Okla.

Century Geophysical Co., Tulsa, Oklahoma; Chance Vought Aircraft Corp., Dallas, Texas; Charter Service, Inc., Houston, Texas; Chesapeake Airways, Inc., Salisbury, Maryland; Chicago Oil Co., Dallas, Texas; Cities Service Co., New York, N. Y.; Civil Aeronautics Adm., Ft. Worth, Texas; Morris S. Clark, Sheridan, Wyo.; Clark Drilling Co., Wichita Falls, Texas; H. H. Coffield, Rockdale, Texas; Core Laboratories, Inc., Dallas, Texas; Creole Petroleum Co., Caracas, Venezuela, S. A.; Crutcher, Rolf Cummings, Houston, Texas; Dal-Air Lines, Inc., Mercedes, Texas; Dallas Aero Service, Dallas, Texas; Rodney DeLange, San Antonio, Texas; Delhi Oil Co., Dallas, Texas; Delta Tank Manufacturing Co., Baton Rouge, La.; L. E. Dixon Co., San Gabriel, Calif.; Frank T. Drought, San Antonio, Texas; Drs. Duff and Pittard, Anson, Texas; Dunham-Pugh Co., Baton Rouge, La.; Dunn Brothers, Dallas, Texas; El Campo Rice Milling Co., El Campo, Texas; Elm Oil Co., Dallas, Texas; P. B. English, Farmington, New Mexico; Executive Transport Co., Dallas, Texas; Fairbanks, Morse & Co., Chicago, Illinois; Federal Underwriters, Dallas, Texas; H. K. Ferguson Co., Cleveland, Ohio; Flour Mills of America, Inc., Kansas City, Mo.; Franklin Supply Co., Chicago, Ill.; Fuller Radio Service, Little Rock, Ark.; General Aeronautics, Inc., Fort Worth, Texas; General Council Assembly of God, Springfield, Mo.; Geophysical Service, Inc., Dallas, Texas; Geotechnical Corp., Dallas, Texas; Gilster-Kemp, Dallas, Texas; B. F. Goodrich Co., Akron, Ohio; George W. Graham, Wichita Falls, Texas.

Greenville Majors Aviation, Greenville, Texas; Gulf Oil Corp., Tulsa, Okla.; Gulf Oil Corp., Houston, Texas; Gulf Oil Corp., Fort Worth, Texas; Gulf Research & Development Co., Philadelphia, Pa.; O. V. Hall, Alma, Ark.; Erle P. Halliburton Co., Corpus Christi, Texas; Halliburton Oil Well Cementing Co., Duncan, Okla.; Harper-Turner Co., Oklahoma City, Okla.; Mark Harris Drilling Co., Jackson, Miss.; R. J. Heron & Associates, Austin, Texas; Hercules Powder Co., Wilmington, Del.; International Paper Co., Mobile, Ala.; W. B. Jacobson, Los Angeles, Calif.; Ray Jensen, Pasadena, Texas; Johnson Bros. Chevrolet Co., Dallas, Texas; W. B. Johnson Drilling Co., Longview, Texas; Gordon Jones, Chickasha, Okla.; Joy Theaters, New Orleans, La.; Keokuk Steel Casting Co., Keokuk, Iowa; Kerr-McGee Oil Industries, Oklahoma City, Okla.; Mrs. C. F. Kolp, Electra, Texas; Kraft Foods Co., Chicago, Ill.; La Gloria Corp., Corpus Christi, Texas; Layne Arkansas Co., Stutgartt, Ark.; LeSage Industries, Dallas, Texas; R. G. LeTourneau, Inc., Longview, Texas; Lewis and Lamberth, Dallas, Texas; Lone Star Olds Cadillac Co., Dallas, Texas; Longview Flying Service, Longview, Texas; Dr. Keith S. Lowell, Dallas, Texas; Lucerne Corp., Dallas, Texas; Lyons & Prentiss, Shreveport, La.; Carter McGregor, Wichita Falls, Texas.

Magnolia Petroleum Co., Dallas, Texas; Magnolia Pipe Line Co., Dallas, Texas; W. H. Magruder, San Antonio, Texas; Grady Marchman, St. Elmo, Ill.; S. W. Marshall, Jr., Dallas, Texas; W. H. Massey, III, Dallas, Texas; Mexia Flying Service, Mexia, Texas; Hardin Miller, Wichita Falls, Texas; M-K-T Railroad Co., Denison, Texas; Modern Aircraft Service, Little Rock, Ark.; Montecito Oil Co., Dallas, Texas; Mene Grande Oil Co., Caracas, Venezuela, S. A.; James F. Morse & Co., Dallas, Texas; Murchison Bros., Dallas, Texas; J. W. Murchison, San Antonio, Texas; Mustang Aviation, Inc., Dallas, Texas; National Insurance Underwriters, Dallas, Texas; V. F. Neuhaus, Mission, Texas; Noble Drilling Co., Tulsa, Okla.; C. L. Norsworthy, Dallas, Texas; Northwestern Aeronautical Co., St. Paul, Minn.; Oklahoma Contracting Co., Dallas, Texas; W. B. Osborn, San Antonio, Texas; Otis Pressure Control, Dallas, Texas; Padgitt Printing Co., Dallas, Texas; Pan American Airways, Brownsville, Texas; Parker Drilling Co., Tulsa, Okla.; Phillips Petroleum Co., Bartlesville, Okla.; E. H. Pickering, Dallas, Texas; Pioneer Air Lines, Inc., Dallas, Texas, and Houston, Texas; L. H. Pitkin, Houston, Texas; Jack I. Potter, Dallas, Texas; Premier Oil Refining Co. of Texas, Longview, Texas; Rambo & Stephens Oil Co., Overton, Texas; Ramsey Petroleum Co., Dallas, Texas; Reading Battery Co., Inc., Reading, Penn.

Charles E. Reagan, Marlin, Texas; J. D. Reed Company, Houston, Texas; Remmert-Werner, Inc., St. Louis, Mo.; Renwar Oil Corp., Dallas, Texas; Reynolds Metals Co., Louisville, Ken.; Henry Reynolds, Pampa, Texas; C. F. Ringeisen, Dallas, Texas; M. H. W. Ritchey, Palo Duro, Texas; Rock Island Oil and Refining Co., Duncan, Okla.; Root Petroleum Co., Shreveport, La.; Rowan Drilling Co., Fort Worth, Texas; Dr. E. O. Rushing, Dallas, Texas; P. R. Rutherford, Houston, Texas; Saxon Aircraft Radio Co., Longview, Texas, and San Antonio, Texas; Seale Aviation Co., Dallas, Texas; Sears, Roebuck & Co., Chicago, Ill.; Shaffer Tool Works, Brea, Calif.; Shamrock Oil & Gas Co., Amarillo, Texas; Sheffield Steel Corp., Kansas City, Mo.; Sinclair Refining Co., New York, N. Y.; Sky Train Airways, New Orleans, La.; Slick Airways, Inc., San Antonio, Texas; Charles L. Smith, Dallas, Texas; Howell Smith & Co., Wichita Falls, Texas; H. W. Snowden Oil Co., Dallas, Texas; Southern Skyways, Dallas, Texas; Southland Life Insurance Co., Dallas, Texas; Southland Paper Mills, Inc., Lufkin, Texas; Southwest Airmotive Co., Dallas, Texas; Southwest Fabricating and Welding Co., Inc., Houston, Texas; Southwest Public Service Co., Dallas, Texas; Southwestern Industrial Electronic Co., Houston, Texas; W. J. Sparks, Jr., Victoria, Texas; G. E. Stalabarger, Enid, Okla.; Standard Air Lines, Long Beach, Calif.; Stanolind Pipeline Co., Dawson, Okla.

Schaeffer Aircraft Co., Palestine, Texas; Al E. Stine, Associated Press; Sun Oil Co., Dallas, Texas; Sun Pipeline Co., Beaumont, Texas; Taylor Radio Service, Tyler, Texas; Ellis Taylor, Henryetta, Okla.; The Noland Co., Richmond, Va.; Texas A. & M. College, College Station, Texas; The Texas Co., Houma, La.; The Texas Co., New York, N. Y.; Texas Eastern Transmission Corp., Shreveport, La.; Tim Flying Service, Wichita Falls, Texas; Toledo Air Associates, Toledo, Ohio; Ray W. Towns, Dallas, Texas; Trinity Drilling Co., Dallas, Texas; International Petroleum Co., Toronto, Canada; Albert Trostel & Sons Co., Milwaukee, Wis.; Two States Drilling Co., Dallas, Texas; Union Producing Co., Shreveport, La.; Universal Co., High Point, N. Carolina; Volusia Aviation Co., Daytona Beach, Fla.; W. T. Waggoner Estate, Vernon, Texas; Warren Petroleum Corp., Tulsa, Okla.; The Weatherhead Co., Cleveland, Ohio; West Production Co., Houston, Texas; West Texas Flying Service, Midland, Texas; Western Cotton Oil Co., Abilene, Texas; Western Supply Co., Tulsa, Okla.; Joe R. Wier, Opelousas, La.; Wilson Manufacturing Co., Wichita Falls, Texas; Wilson Radio Co., Tulsa, Okla.; Frank Wood Associates, Wichita Falls, Texas; Jack Woodward, Inc., Dallas, Texas; Carl B. King, Dallas, Texas.

Lion Oil Company, El Dorado, Ark.; WFAA Radio Station, Dallas, Texas; Fish Engineering Corp., Houston, Texas; Joe H. Cable, Wichita Falls, Texas; Miles Pierce, Ozona, Texas; Lester Clark, Breckenridge, Texas; Mode Air Card Co., East Troy, Wis.; Dr. C. A. Robinson, Kermit, Texas; Earl Rowland, Dallas, Texas; A. O. Hyers, Alexandria, La.; R. F. Poole, Jr., Dallas, Texas; Gene Autry, Hollywood, Calif.; E. L. Kornblum, New York, N. Y.; Atlas Supply Company, Newark, New Jersey; Lone Star Wholesale Co., Dallas, Texas; General Manufacturing Co., Houston, Texas; D. B. Salmon, Durant, Okla.; Claude Rains, Plainview, Texas; Seminole Flying Service, Seminole, Texas; C. E. Francis, Wellington, Texas; Kurth Aerial Photos, Tucson, Arizona; P. L. Capy, Jr., Dallas, Texas; McCracken Brothers Motor Freight, Eugene, Ore.; A. Lyon, Cortez, Colo.; H. L. Averitte, Palestine, Texas; C. C. Edgar, Dallas, Texas; Barsh Aircraft Equipment & Parts, New York, N. Y.; David Clark Company, Worcester, Mass.; John Hensley, Palestine, Texas; Pan American Exploration Co., Dallas, Texas; Geotronic Laboratories, Dallas, Texas; Roy Kern, Scranton, N. Dakota; Zenith, Inc., of Odessa, Odessa, Texas; Waco Aero Sales & Service, Waco, Texas; Rent-A-Plane Co., Dallas, Texas; Lufkin Air Service, Lufkin, Texas; Louis H. Simpson, Mexia, Texas.

G. M. Hearne, Shreveport, La.; Clarke Aero Service, Little Rock, Ark.; Standard Air Cargo Co., San Diego, Calif.; Pioneer Contracting Co., Inc., Dyersburg, Tenn.; D. W. Disney, Napa, Calif.; J. J. Goodwin & Jim Dixon, Dallas, Texas; L. D. Ryan, Wichita Falls, Texas; Brittain and Lee, Frederick, Okla.; Jacksonville Flying Service, Jacksonville, Texas; Sielaff Flying Service, Dallas, Texas; W. H. Peterson, Atlanta, Ga.; C. E. Kinnerd, Sweetwater, Texas; I. V. Packard, Hastings, Nebr.; Smyer Aircraft Co., Ponca City, Okla.; N. M. Burger, Atlanta, Ga.; Henry W. Schmidt, Jr., Corpus Christi, Texas; Henry E. Robertson Co., Inc., Los Angeles, Calif.; Ohio Insurance Co., Hamilton, Ohio; Harrison Equipment Co., Inc., Houston, Texas, and Dallas, Texas; F. R. Ogden, Dallas, Texas; Claude Hutchinson, Plainview, Texas; Roy C. Hooper, Monterey Park, Calif.; J. C. Foster, Odessa, Texas; Varo Manufacturing Co., Garland, Texas; United Air Service, El Dorado, Ark.; Lee & Combs Flying Service, Tulsa, Okla.; H. R. Gibbons, Inglewood, Calif.; Dr. James C. Drain, Bandera, Texas; Goodyear Tire and Rubber Co., Akron, Ohio; John C. Foster, Odessa, Texas; Kraftco Container Corp., West Monroe, La.; W. H. Bowden, Odessa, Texas; Rugene Transportation Co., Dallas, Texas; Percy Jones, Oklahoma City, Okla.; H. L. Jennings, Dallas, Texas; Ernest Wilks, Dallas, Texas; H. E. Guisinger, Dallas, Texas; Joe Strube, Corsicana, Texas; C. V. Hagen, Houston, Texas; Shaw and Estes Construction Co., Dallas, Texas.

★ ARC ★ BENDIX
★ COLLINS ★ LEAR
★ VHF AVIGATOR

North Texas Distributors for
**Doolittle Oil Field, Railway, Taxicab Communications**

## Associated Radio

CARL FOX
TONY AGUILAR
LEE LANFORD

LOVE FIELD • DALLAS

Fig. 1. Exactly 3,000 ft. above runway or terrain. DeCelles Altimeters have common setting of 31.00, which is not controllable. In these illustrations, the zero indices have been rotated to mark 4,750 ft. pressure altitude based on setting of 31.00.

Fig. 2. Exactly 1,000 ft. above runway or terrain. For airways separation, sensitive hand is held on the zero of the fixed card as customary with conventional altimeters. But for stacking and let-down, it is held on the zero of the outer (red) "slide rule" to hold exact thousands of feet above the runway.

Fig. 3. Exactly on the runway. The "slide rule" (red numbers) being geared 10 to 1 as are the hands of the instrument, you will read the exact number of feet above the runway. An exact comparison of any two such instruments in same locality gives positive vertical separation.

# Altimeters for Safety

## A veteran pilot develops a new and simple theory on altimetry which provides positive vertical separation and zero landings

**By J. H. (Doc) DeCELLES**

MORE than ten years ago I was flying CAA ship NC-81 from Omaha to Des Moines. I had set my altimeter at the current setting for Omaha upon departure and was cleared to fly at 3,000 feet en route. A United Air Lines schedule departed Des Moines for Omaha a few minutes later and was cleared to fly at 4,000 feet. He had his altimeter set at the current setting for Des Moines. Both of us were "homing" on the midway point's radio station at Adair, Iowa, and it was only by a miracle that a head-on collision was avoided.

I returned to Omaha mad as hell and requested via radio that the airline pilot be held until I landed. He was just as anxious for a meeting as I was because he wanted to know why a CAA ship was not flying at assigned altitude. After an exchange of some harsh words we cooled off and checked the facts in the case—facts that exonerated both of us.

We were both actually flying at 3,500 feet over Adair because of a difference of one inch in barometric pressure at the points of our respective departures, plus the fact that Adair apparently was the equalization point of around 29.84, while Omaha and Des Moines were at 30.39 and 29.30 respectively. Both of us shrugged our shoulders and shook hands when we accepted this horrible example of an elastic measuring device. I realized quite vividly that *a common altimeter setting would have given us more than just the mental separation we had!*

Not long after this hair-raising experience the president of one of our largest airlines had his back broken in an accident which involved the altimeter. It was assumed that a transposition of the altimeter setting made the altimeter read one thousand feet too high. The pilot had a mental elevation only and was making a procedure turn into the Atlanta airport, normally made at one thousand feet above the airport elevation. Coming in on final approach in bad weather he crashed. If the actual pressure was 29.30 and the pilot through error set the instrument at 30.29, his instrument would have read 2,000 feet when actually he had only 1,000 feet of altitude, the actual altitude of the airport he was approaching. (Fig. 4 and Fig. 5.)

These two cases illustrate why I came to the conclusion that when an exact measurement becomes a matter of life or death, it is too dangerous to have the measuring device flexible or "elastic" at both ends. For example, in today's common altimeter it is possible for the pilot and the airport tower operator to rotate the hands of their altimeters from a minus 970 (on the instrument it shows as 9,030 feet plus) to a plus 1,750 without changing altitude. The hands may be moved beyond these limits, without a pressure setting in the little window of the instrument. Transposing the number, or placing the wrong number in that little window has been responsible for an untold number of bad accidents.

Positive vertical separation of aircraft can be had with the use of any common setting. For example, 29.92

is used on transoceanic air traffic today. Quite naturally if two airplanes have a common setting, they will have vertical separation when their instruments show such separation and when they are in the same locality. It must be remembered that 29.92 is the mean pressure at sea level and has both plus and minus readings. If a pilot attempted to land with an instrument set at 29.92, unless the actual pressure was in agreement, he would get a faulty reading. If the pressure was 29.98 instead of his reading of 29.92 when he tried to land at sea level, his instrument would show a minus reading of 60 feet, which could only be read as 9,940 feet.

It is my contention that the altimeter should be non-flexible—that the hands can not be operated manually. Minus readings are then not possible unless the pressure goes above 31.00. Since the greatest extremes in pressure known to man at sea level are a high of 31.00 and a low of 24.00, the altimeter I have developed is pre-set at 31.00 and there is no setting window. As a result, an exact comparison of any two such altimeters in the same locality will give *positive vertical separation* between aircraft in flight or between aircraft and the ground or airport runway as the case may be.

Knowing the exact reading of the DeCelles altimeter in the tower supplies the pilot with accurate information. His instrument will read the same as the airport altimeter when he lands since his instrument is set identically and locked against calibration. By setting the zero indices of his geared slide-rule (ten to one) to the simulated pressure altitude of the airport or airplane, he automatically subtracts the simulated information from a locked instrument, thereby converting his information to read zero when the runway is touched, or exactly 1,000 feet above the runway when he is actually 1,000 feet above the runway.

My system of altimeters has been thoroughly flight-tested at both the CAA standardization center at Oklahoma City and the CAA experimental station at Indianapolis during the past two years. From a questionnaire which was filled in by 82 CAA safety agents from all sections of the country who actually flew under this system of altimetry, 76 enthusiastically endorsed it, 4 were doubtful and 2 opposed the system. What impresses those pilots who test-fly the system is the feasibility of spacing flight levels at 500 feet vertical elevations, eliminating today's method in which all spacings are "mental" rather than positive.

In addition to the positive vertical separation of aircraft and an accurate zero reading instrument for landings, the DeCelles altimeter eliminates barometric calibrations, simplifies let-down procedures and does away with the need to know what the airport elevation is above sea level. With all the talk going around of the highly complex and heavy equipment which will be necessary for safety in flight in the future, it appears that many airplanes won't be able to get off the ground because they simply won't be large enough to carry the load. It is the writer's opinion that this practical approach to an age-old problem will go far to make flying not only much safer from an air traffic standpoint but will also make it unnecessary for the average airplane to be a flying box-car in order to fly at exact, pre-determined altitudes. ★ ★ ★

Fig. 4. Where the pilot thought he was.

Here's an error easily made with conventional altimeters. Note barometric pressure setting in window above reads 30.29. It gives the pilot a reading of 2,000 ft. of altitude.

But he transposed the barometric pressure. It should have been set as in the instrument below—at 29.30, which gives him an altitude of only 1,000 ft., at which he came in contact with the ground.

Fig. 5. Where the pilot actually was.

**ABOUT THE AUTHOR**

Doc DeCelles served with the Navy in World War I and his first "good paying" aviation job was as delivery pilot with Alexander Aircraft (Eaglerock) in 1926. He was chief pilot of Garland Aircraft Co. in Tulsa in 1928 and flew the Mexican air mail the next year, after which he served for 7 years as Spartan Aircraft's chief test pilot. He then joined CAA and has been with it for the last 12 years. In 1943 secret solo flight, he surveyed the needs for radio aids over Hudson Bay region for fighter planes. Besides his CAA duties, he has worked long on his theory of altimetry and the test instrument that proved his theory as well as plans for its use in air traffic control.

# New for 1950

## Further improvements to popular lightplanes feature new models announced by Piper, Ryan, Cessna and Aeronca as the new year gets under way

By TOM ASHLEY

NEW models of personal airplanes for 1950 will again feature, as in recent years, improvements to existing models in the popular lines, although several aspiring single-engine experimentals remain under continued development for eventual efforts to obtain both certification and production.

Navion, Piper, Cessna and Aeronca models for 1950 were announced this month. Bellanca has a new version of its Cruisair. Beech denied rumors that it was changing its Bonanza design to accommodate a more powerful engine and a vertical tail, but will probably announce late in January some 1950 Bonanza refinements. Temco has a 145-hp. version of its 2-place Swift 125 but is not expected to bring it out until full development has been attained with its military version of the Swift, the 145-hp. Buckaraoo trainer, which has had priority over the new Swift for several months now.

Still aspiring for initial public introduction to the market are several interesting single-engine experimentals, including the 2-place Jamieson Jupiter at Melbourne, Florida, which resembles the Culver V but has a V tail; the 2-place Anderson-Greenwood pusher with tail boom at Houston, Texas; Pop Johnson's 4-place Bullet at Tyler, Texas; the Koppen-Bollinger helioplane up in New England which features high-lift devices, over-size propeller and revolutionary exhaust muffling; Moulton Taylor's 2-place flying automobile with mix-master propeller in the tail, now being flight-tested at Longview, Washington, and the Fulton roadable airplane in the New York area, which has been demonstrated at the National Air Races, in England and other places in recent years.

### 125-hp. Piper Pacer

Among the new versions of popular models already on the market, Piper Aircraft's new super Clipper is attracting great interest. Piper is substituting the name "Pacer" for "Clipper," the latter being dropped because Pan American Airways considers such a name its own in view of its popularization of the term through years of air transport promotional efforts. Full details of the 1950 Pacer were to be divulged later in January, but it was already known that Piper is readying new versions of the low-priced little 4-place tube-and-fabric headliners. They will include a 125-hp. Lycoming-powered deluxe model and

New and more efficient cowl and paint trim give the new 1950 Cessna 170 (top) and 140 (bottom) a distinctive appearance. Other changes include new rubber shock-mounted engine suspension, improved door locking mechanism and redesigned front and rear seats.
—(Cessna Photos.)

a refined, comfortized successor to the 1948 Clipper with 115-hp. Lycoming which became widely popular.

Bellanca is offering a new 4-place Model 14-19 Cruisair, powered by a 190-hp. O-435-A Lycoming. It has been certificated by CAA, which posts its maximum structure cruising speed at 167 mph. and its never exceed speed far up there at 226 mph. Gross weight is 2,400 lbs., and baggage capacity has been increased to 110 lbs. Fuel capacity is 40 gals. The new Cruisair, which closely resembles last year's less-powerful model but which is more comfortable as well as much faster, is priced at $9,500 at the factory. It is reported as being the top performer in its power category.

### Cessna Progress

Don Flower, enterprising sales manager of Cessna, has revealed improvements to his firm's popular 2-place Model 140 and 4-place Model 170 for 1950. Leading Cessna's refinements are new styling inside and out, with more comfortable upholstery. Both front and rear seats in both models have been redesigned. Up front, a new and more efficient streamlined cowl is the most noticeable improvement. It adds to appearance, reduces drag, and has easier access through the addition of a convenient lift strap. Under the cowl, a new rubber shock-mounted engine suspension is provided. Cessna's characteristic long ailerons, tapered wing and single lift strut have been retained, and an improved door-locking mechanism is offered. Annual changes are not customary in the larger Model 190-195 series. Incidentally, Flower continues to deny that Cessna has any plans "at the present time" for marketing a lightweight twin-engine model, although it is persistently talked through the industry that both high-wing and low-wing twins are being studied at Cessna.

Cessna's leadership in the industry was extended during 1949, as shown in President Dwane Wallace's recent annual report to stockholders in which the Cessna share of the industry's 1949 dollar volume was pictured as reaching 31.1 per cent as compared with 19.3 per cent in 1948 and 13.4 per cent in 1947. The total Cessna volume in 1949 was $6,560,370, with the Model 170 bringing in more business than any other model in the line. The breakdown is as follows: Four-place models, $3,501,927; 4-5-place models, $2,427,608; spares and accessories, $1,042,250, and 2-place models, $588,485. Twenty per cent of Cessna's airplane sales were for export as compared with 9.2 per cent for 1948. Non-aircraft products almost equalled Cessna's aircraft billings, being valued at $6,178,063 for 1949, of which $3,930,380 was for furniture, $1,245,107 for hydraulics, $954,622 for aluminum lockers and $47,954 for sundry other items. The company has recently expanded its warehousing space by adding 20,160 sq. ft. in a new building.

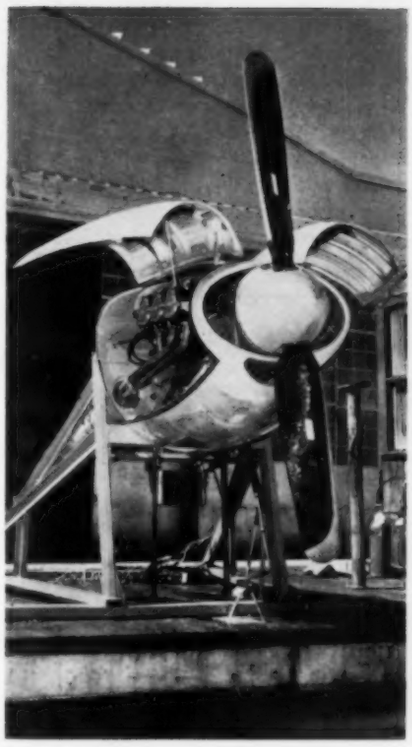
### Three Navions for 1950

Ryan will offer three Navion models during 1950, with prices ranging from $9,485 to $13,985. These will be refined deluxe model with 205-hp. Continental at $10,985; a utility 205-hp. model at $9,485 and a super Navion with 260-hp. Lycoming at $13,985. Deliveries of the 205-hp. models were to be immediate, but the first 260's are not expected off the line until March.

Some distributors already report orders for the 260 Navion and it is expected to prove popular among those who need the extra power, especially at altitude. With a 20-gal. auxiliary tank as standard, its normal range is said to be 640 miles. In giving the super Navion's performance, Ryan departs from its custom of using general terms. Instead of saying it will cruise "up to such a speed" and climb "up to so many feet per minute," the company flatly states the super will cruise at 170 mph. and climb 1,250 fpm. at full load. Take-off distance is placed at only 400 ft. for ground run and only 770 ft. to clear a 50-ft. obstacle, while it is said to require only 875 ft. to the end of the landing roll in approaching over a 50-ft. obstacle, the ground roll itself being only 470 ft.

How the market will take to a "utility" version of the 205-hp. Navion remains to be seen. Only difference between it and the deluxe 205 is that the accessories furnished are limited. "The buyer of the utility model may choose any specific additional accessories he wishes and have them added as optional equipment, but is not required to take any he does not desire," Ryan explained, saying the general reaction among potential utility Navion customers has been that it is a "lot of airplane for $9,485 and fills a long felt need."

Ryan has further refined the deluxe 205-hp. Navion for 1950. Most important new feature is the provision of manually-controlled engine cowl flaps as standard equipment, along with cylinder-head temperature gauge, for improved engine operation. Flexible hose has replaced rigid plumbing to flap and nose gear actuating cylinders; a fin-to-elevator antenna has been added to the fuselage-to-fin antenna for better radio performance, and a new cabin air intake arrangement will increase fresh-air circulation and ventilation. Three new colors will be offered — ceramic red, gala green and coastal blue.

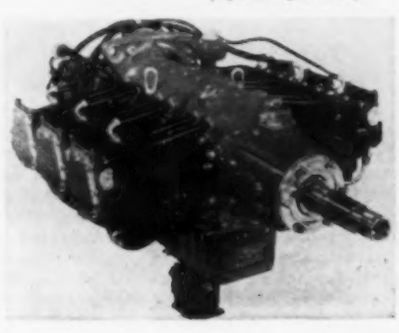


Lycoming's new 6-cylinder, horizontally-opposed GO-435 engine, rated at 240 hp. at 3,000 rpm., and at 260-hp. at 3,400 rpm. for take-off, is shown above on Beech Aircraft test stand. This one is mounted in a nacelle for the new Twin Bonanza and is driving a controllable Beech propeller.
—(Lycoming Photo.)

### New Lycoming Approved

Describing the 6-cylinder, geared 260-hp. Lycoming which powers its Super Navion, Ryan said it is rated at 260 hp. at 3,400 rpm. for 2 minutes at take-off. Its normal continuous power rating is 240 hp. at 3,000 rpm.

New geared Lycoming GO-435, which powers the new Super Navion 260, has new-type cylinder heads. It has been type-certificated by CAA. Displacement is 434 cu. ins. Total engine weight in dry condition and including starter and generator is 460 lbs.
—(Lycoming Photo.)



Developed from the 190 Model O-435 which powered wartime L-5 liaison planes, the geared GO-435 version was used in military drones. Latest "C2" version incorporates extensive refinements, such as new type cylinder heads, new crankshaft and gear reduction of a proven design. Says Ryan: "The more expensive military version of this engine is to be used as standard equipment in the 260 Navion. It is furnished with the A-N accessory case and A-N type Eclipse starter and generator."

Further details of the new engine have been released by Avco's Lycoming-Spencer Division. S. B. Withington, general manager, said the new horizontally-opposed engine, recently approved by CAA and now in production, will be used in the Beechcraft Twin Bonanza as well as in the Navion. With it, Lycoming now has geared engines in 4, 6 and 8-cylinder models ranging from 60 to 400 hp. Citing Lycoming as the pioneer in developing propeller reduction gears for horizontally-opposed engines of small horsepower, he said the geared engine offers three major advantages over direct-drive — increased propeller efficiency, increased power and engine efficiency and reduced propeller noise level. He released the following specifications for the Lycoming GO-435-A2 and C2 series engines:

Model—GO-435-A2; type—geared, 6 cylinder, horizontally opposed, air cooled; take-off hp. — 260; take-off rpm.—3,400; rated hp.—240; rated rpm.—3,000; propeller drive ratio—77:120; bore—4⅞; stroke—3⅞; displacement—434.00 cu. inches; compression ratio — 7.3:1; fuel — 91/98 octane; oil sump capacity—12 qts.; over all length—40.71 inches; over all height—29.59 inches; over all width —33.12 inches; engine weight dry (starter and generator installed)—460 lbs. (without starter and generator installed) 432 lbs.

Model—GO-435-C2; type—geared, 6 cylinder, horizontally opposed, air cooled; take-off hp. — 260; take-off rpm. — 3,400; rated hp. — 240; rated rpm.—3,000; propeller drive ratio—77:120; bore—4⅞; stroke—3⅞; displacement—434.00 cu. inches; compression ratio — 7.3:1; fuel — 91/98 octane; oil sump capacity—12 qts.; over all length—39.57 inches; over all height—29.59 inches; over all width —33.12 inches; engine weight dry (starter and generator installed)—460 lbs. (without starter and generator installed)—432 lbs.

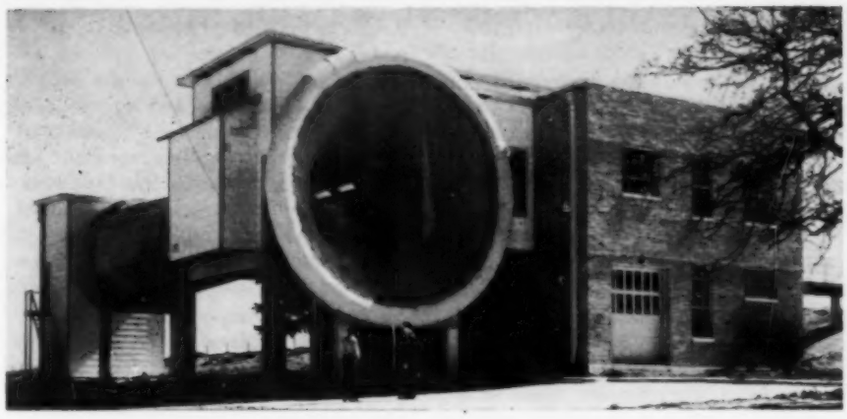
### New 90-hp. Aeronca

Aeronca Aircraft has added a new 90-hp. Champion with electrical system and full-width rear seat to its 1950 line of airplanes, which will also include 85-hp. and 65-hp. versions of the Champion and the 4-place sedan.

The new 2-place Model 7EC of 90 hp. will feature a 12-volt electrical system with starter, generator, battery and necessary wiring for instrument, navigation and landing lights. Other new items will include complete soundproofing, full-width rear seat, improved hinged cowling, "no-bounce" landing gear, leading edge landing light, navigation lights, stainless steel mufflers and cabin heater. It will have as standard equipment a right wing tank of 18.5 gals., and an optional 5.5-gal. auxiliary tank for the left wing. Deliveries were started last month. ★ ★ ★

**EVERYTHING IN ONE PACKAGE** has been achieved in this double ram's horn antenna on Fred Dick's Southwestern Public Service executive Beech Twin, believed to be first installation of its kind. Problem was to avoid drag while achieving optimum reception. It was encountered when second antenna was required for new omni installation. Most radio men contended two ram's horns on same mast would create signal interferences but Carl Fox of Associated Radio at Love Field in Dallas experimented with the pilot's idea of a double-decker and sure enough it worked without signal interference. In addition, it elevated the omni antenna far above propellers and other surfaces for improved omni reception. Pilot reports no increase in drag and satisfactory stability of mast, even under icing conditions. Pilot Dick, who has authored several articles in SOUTHERN FLIGHT, achieved dual VHF with the trick installation. Upper ram's horn is ARC A-13 omni and No. 2 ILS-glide path antenna. Trailing back from it, with two insulators to prevent signal absorption, is ADF sense antenna which goes to No. 1 VHF transmitter and receiver mast in rear, where No. 1 ADF loop is also mounted. Lower ram's horn is No. 1 ILS-glide path-localizer antenna. On belly are No. 2 ADF loop and sense antenna; No. 2 VHF transmitter and receiver mast; two flush-mounted marker antennas and one antenna for both a range receiver and an auxiliary battery receiver.
—(SOUTHERN FLIGHT Photo by Tom W. Collins.)

**COMMERCIAL HELICOPTER SALES IN 1949** were led by United Helicopters, Inc., Palo Alto, California. The photo shows United's Hiller 360. Stanley Hiller, Jr., head of the concern, says his machines have been adapted throughout the U. S. and several foreign countries as "new tools of industry" in such diversified operations as fishing, petroleum, farming, forestry, mail and delivery, general patrol, air ambulance and rescue work. First commercial helicopter type-certificated by CAA, the Hiller is distinguished by a unique servo-control rotor and this, rather than the lifting blades, as on conventional helicopters. Self-dampening action on the part of the servo rotor, which has aerodynamic surfaces, corrects for oscillation of the helicopter to provide inherent stability and hands-off flight.
—(United Helicopters Photo.)



This wind tunnel on the campus of Texas A. & M. at College Station, Texas, is headquarters of the school's important Personal Aircraft Research Center and has a large shop in which an experimental agricultural airplane will be constructed. It also houses Fred E. Weick and his engineering staff. The school's outstanding airport is located across the street from the wind tunnel.
—(Texas A. & M. Photo.)

# An Airplane for Agriculture

## Research and experimentation in a cooperative program just launched at Texas A. & M. promise important improvements for an almost unlimited field of aviation endeavor

By GEORGE E. HADDAWAY

DEEP in the heart of Texas there's a small but efficient aeronautical laboratory complete with wind tunnel on one of the world's largest college-owned airports. Here on the bustling campus of the Agricultural and Mechanical College of Texas a small group of aeronautical engineers and designers are hard at work, delving into some of the knotty problems which have issued from the fruitful though baffling marriage of the airplane with the plow.

Under the direction of Fred E. Weick, Distinguished Professor and Director of A. & M.'s Personal Aircraft Research Center, the small group of industry and government specialists is undertaking the first major attempt to develop a purely agricultural airplane from scratch, utilizing the composite knowledge and experience of dust and spray operators from every corner of the nation who realize a real opportunity in agricultural aviation now exists and unless something is done soon to augment and improve present available equipment, the very props will fall from the foundation of what can be an almost unlimited field of aviation endeavor on a world-wide scale.

The A. & M. project is the first concerted effort ever made to get agricultural aviation out of the hit-or-miss, catch-as-catch-can, clunker category through a simple formula of research, intelligent experimentation, common horse sense and a lot of cooperation. Most of the common horse sense is coming from successful spray and dust operators who have learned the hard way just what features the airplane and dispensing equipment should have, while cooperation is coming from both industry and government channels—funds and engineers from the CAA; airflow studies from the NACA laboratories; personnel and some equipment from airplane and engine manufacturers; chemists, plant, and insect experts from the Department of Agriculture; plus personnel and facilities of the Texas College, including the assistance of 39 agriculture experiment stations throughout the state dealing with everything from citrus fruits, forests and rice in the lowlands to wheat and cotton on the high plains.

Fred Weick knows what he is doing, recognizes the limitations of the project at this particular stage of the game and appreciates the necessity to compromise on the first design his group of engineers turns out. His hard working group is busy sifting out reams of suggestions received from scores of dust and spray operators. While an earnest effort will be made to incorporate as many of the suggestions as technically possible, everyone knows the first prototype just can't be all things to all operators.

Although the actual design is still in the "talk" stage and is "subject to change without notice," the project committee has made up its mind, after highly spirited argument and discussion, to produce a prototype of low-wing, all-metal construction mounting a flat engine in the 185-260 horsepower range. The first design will probably carry the new Continental said to give 225 hp. for take-off and 204 hp. for cruise. The first engine, incidentally, will be a gift from the Continental Motors Corporation to the Flying Farmers Research Foundation, one of the sponsors of the A. & M. project.

There is little doubt but that Fred Weick's propensity for high lift devices and anti-stall characteristics will be evident in the new prototype. Weick's group wants to get a power-off stalling speed in the neighborhood of 45 mph., a rate of climb of some 700 feet per minute and a take-off run under full load conditions at sea level of under 1,000 feet so that it can operate in and out of small fields. Design gross weight would be around 3,000 pounds.

It will be designed to carry 800 pounds of material (dust, liquid, fertilizer, seed, etc.) with a possible over-

load to 1,200 pounds under extremely favorable conditions — considerably better than what the average converted Stearman duster normally carries. With the 800-pound load, the plane also will carry 180 pounds of fuel and a 170-pound pilot for a total normal useful of 1,150 pounds.

The engineers are striving for a working speed of from 60 to 90 miles an hour with a cruising speed of from 90 to 100 mph. They anticipate a range of two and one-half to three hours at 75 per cent power.

A number of project committee members argued vehemently for a much larger airplane using radial engines. High wing and biplane designs together with tube and fabric construction were thoroughly considered. But the low-wing, all-metal design finally won out, as did the flat engine because of lower initial and maintenance costs, availability of parts and service all over the nation and because of superior pilot visibility over the nose—an important factor especially since increased safety is one of the paramount objectives of the project.

Using conventional landing gear (reportedly a Cessna contribution) carrying over-size tires for rough fields, there's a possibility the gear will be arranged to shear off to prevent nose-over in case of hitting ditches or other obstructions on take-off. In view of the large number of collisions dusting pilots have with such obstructions as highlines, trees and fences, consideration is being given to provide landing gear and tail wheel supports with sharp edges which, it is hoped, will cut wires instead of catching on them. Another item being

# Solo Flight

**Words and Pictures by ERIC WAHLEEN**

HE'S an old-timer at flying now, with thousands of hours in the air. But from these pictures you can bet he still remembers his first solo flight as if it happened only yesterday.

Suddenly his instructor grinned. "This," he smiled, "is it—you're ready to solo." And that's what our emotin' hero remembers now. How he listened so intently to last-minute pointers from the instructor as he climbed out of the plane and waved him away. How empty that front seat looked. Then he cracked the throttle and taxied to the end of the runway. The pictures show what happened:

**CONFIDENCE PUMPED UP** by his instructor, our hero gets squared away to relax at the end of the runway. Nonchalant—that's me.

**BRAKES LOCKED,** the plane strained and exhaust barked ten times as loud as it should when he checked magnetos, rpm., oil and carburetor heat.

**GOTTA KEEP HER ON** a little longer. Cripes, this runway isn't as long as I thought it was. Gotta pull her off! E-e-e-asy—I'm off!

studied is a deflector device in front of the windshield to guard the pilot who finds he can not clear a highline and has to fly under it.

The poor safety record and unreasonably high fatality rate in agricultural work is enough to make the project engineers crash and safety conscious. Perhaps one of the most significant aspects of the project is the plan to use results of exhaustive studies made by Hugh DeHaven's Crash Injury Research organization, especially in cockpit arrangement and pilot protection. DeHaven's studies incontrovertibly prove that a tremendous number of crashes result in fatalities and serious injuries which can be materially reduced by cockpit modifications, relocation of engine, rearrangement and relocation of the instrument panel, and other similar design changes. The pilot will be seated high above the trailing edge of the wing so the forward structure, fuel and pay load will be well in front or below in order to absorb most of the shock in case of accident. There is plenty of statistical data available to prove both the safety and visibility advantages of such design. Other pilot protection measures include a special seat belt and shoulder harness, the latter having an inertia reel and light cable with a spring arrangement similar to the type used by jet pilots to resist forward pull of the pilot's body in case of crash. An extension of the head rest will provide a turn-over guard.

Rubber-lined fuel tanks will be mounted behind the engine with gravity flow, while dust and spray loads will be in separate compartments carried in the wing—a high lift wing about 20 inches thick.

Tanks for liquids will be mounted on either side of the fuselage in the center section of the wing, with the spray boom inside a full-span, slotted flap. Dust hoppers, also in the wing and outboard from the spray tanks, will permit improved distribution of non-liquids along the trailing edge of the wing. Utilization of new and specially treated materials will minimize or eliminate corrosion from chemicals which play havoc with untreated metal and fabric now being used on most craft.

Considerable study and attention is being given to many other suggested innovations. For example, in order to eliminate wiring in the wings and the necessity of large batteries, it has been suggested that position lights be powered by small, easily replaced individual dry batteries to reduce fire and dust-explosion hazards. Care will be taken with such items as exhaust stacks so that there will be no danger of hot exhaust gases mixing with certain inflammable or explosive chemicals often carried in such craft. As in the matter of safety no effort is being spared for pilot comfort and flying ease in view of the long hours many agricultural pilots have to fly during rush seasons.

While most of the flying public's principal interest revolves around the airplane to be developed, the A. & M. project group considers the development of improved dispensing equipment just as important, if not more so, than the airplane itself. They hope to come up with some practical ideas for improving the design and flight characteristics of airplanes to be used for agricultural work but they believe the most immediate beneficial results will come from their efforts to evolve a system for conveniently and accurately measuring the distribution of agricultural materials such as spray, dust, seed or fertilizer. Not only will they attempt to improve the performance of present dispensing equipment by modification but they also will design and construct new types of dispensing equipment which will be installed and tested on the prototype airplane.

Here are the main phases of the dispensing equipment program if sufficient funds are available:

1. Study of existing data on the measurement of distribution of solid and liquid agricultural materials dispensed from aircraft;

2. Study of materials to be dispensed;

3. Experiments in measuring the distribution by current and new methods;

4. Evaluation of systems tried;

5. Construction of distribution measurement systems;

6. Comparative tests on existing dispensing equipment;

*(Continued on page 23)*

**LOOKIT HER CLIMB!** Better level off. Watch that turn. Gotta look for traffic. Hold nose down. Keep wing up. Too much throttle.

**WHAT AN APPROACH!** Watch that DC-3. I'm short. Pull up. Where's DC-3? Level off. Watch out! Whaddaya know, I'm on the ground!

**IT WAS A CINCH!** Better go easy on those brakes though. Wasn't anything to it. Wonder what I did wrong? Wonder why it's so warm in here?

# 1949—The Aircraft Industry—1950

## Personal aviation still suffers as rest of industry surges toward higher goals for a promising new decade

By ADMIRAL DeWITT C. RAMSEY
USN (Ret.)
President, Aircraft Industries Association

MOST branches of aviation experienced further improvement in 1949. The airlines reported their greatest peacetime activity and profits, the manufacturing industry continued to improve its financial position, and personal aviation established a stronger foothold in agricultural and industrial markets. The controversies over the B-36 and unification problems, and the announcement of an atomic explosion by the Russians re-emphasized the predominance of air power as our first line of national security.

Congress again voted overwhelmingly its belief in a stable, long-term aircraft procurement program — the most important of all the recommendations in the Finletter and Congressional Board reports. These expressions were reflected in the votes on the 1950 appropriations for the Air Force. The final margin in the House of Representatives, 305 to 1 for continuation of at least a 58-group Air Force (the Finletter and Congressional Boards endorsed 70 groups) *was the most heartening development of the year for air power supporters.*

The program approved by Congress has not been implemented, however, because of decisions by President Truman and the Secretary of Defense to place part of the funds "in reserve." The resulting reductions in available funds necessitated cutbacks in proposed procurement plans of the Services as reported in the press, but they will probably not bring about accompanying contractions in production and employment until later in 1950.

The orders by the Air Force out of 1950 funds reported so far are for 1050 airplanes, as compared to the peak of over 5,000 per year required for the original 70-group program.

### Production

Production of military aircraft during the calendar year 1949 will probably exceed the 2,200-2,400 units of 1948 by two or three hundred airplanes. During 1948 the military services for security reasons eliminated the reporting of units. The reports now use airframe pounds instead of units as the statistical reporting yardstick. Military production by this measure is estimated to reach 28,000,000 pounds for the year compared to 25,-100,000 in 1948. The proportionately greater increase in airframe weight as compared to units for the two years can be traced to the increased deliveries of heavy bombardment aircraft during 1949.

Production of airline transport aircraft in 1949 will amount to less than 120 units. An additional 45 smaller twin engine executive planes were produced. This compares to about 260 commercial and executive type units turned out in 1948 and 280 units in 1947.

In the personal aircraft field production amounted to about 3,400 units in 1949, compared to 1948 production of 7,039 units. The trend established in 1948 continues with a greater proportion of the production consisting of the four-passenger types used for executive and other business purposes while in earlier years the output was predominantly of the two-passenger type used for training purposes.

There are no official data showing the production of helicopters. It is estimated that some 200 units will again be produced this year for military and commercial purposes combined. Although the unit deliveries were approximately the same for both 1948 and 1949, there was an increase in helicopter production activity as several manufacturers brought out new, heavier models.

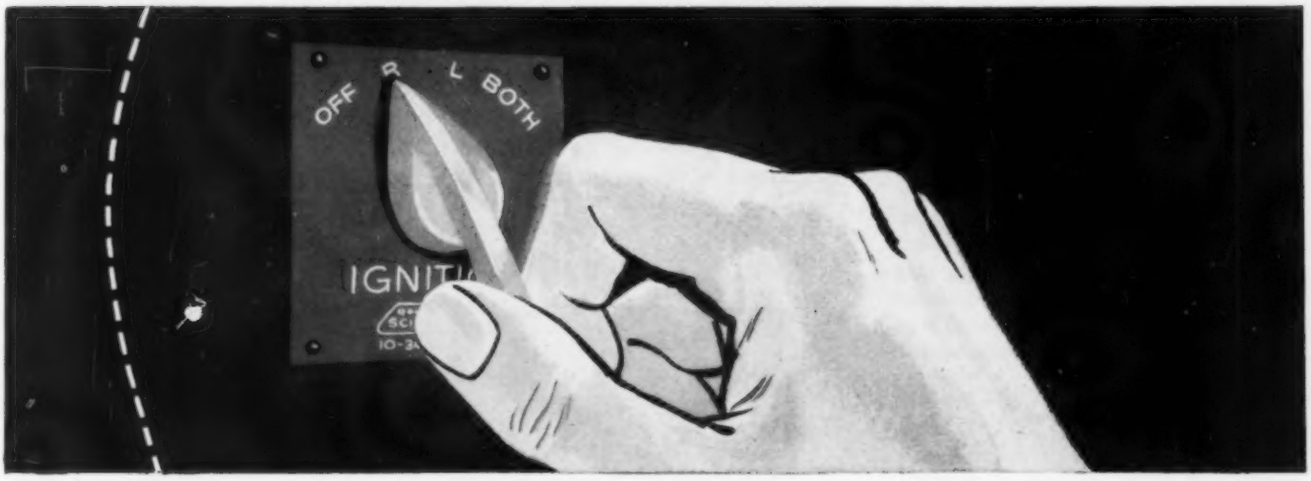
The sales volume for 1949 for all airframe, engine and propeller companies is estimated at $1,700,000,000.

Profits for the industry during 1949 cannot be accurately estimated at this time due to renegotiation and to uncertainty concerning interpretation of

**Lindbergh Looks at Progress**

Charles A. Lindbergh, now a consultant to the U. S. Air Force Chief of Staff, is shown at left receiving the 1949 Wright Brothers Trophy from Louis Leverone, NAA president, for "service of enduring value to U. S. aviation." Accepting the award at the Aero Club of Washington, he deplored the ascendency of "scientific theory" over human qualities and the character of man in the cockpit and urged a re-orientation of standards. Full text of Lindbergh's views is published on page 21 of this issue.
—(Aero Club of Washington Photo by Del Ankers.)

# Take a Real Cut Out of Maintenance Time and Expense




## switch to BENDIX-SCINTILLA

# LOW TENSION IGNITION SYSTEMS

By assuring freedom from many of the difficulties normally encountered with high voltages and excessive spark plug erosion, the Bendix-Scintilla Low Tension Ignition System provides performance that virtually revolutionizes maintenance procedures. Here is a truly remarkable advance in the search for more dependable and economical flight operations—designed to eliminate conventional ignition problems, and incorporating in its construction many exclusive features. Investigate the Bendix-Scintilla Low Tension Ignition System at your earliest opportunity, for it is a significant step forward—one which you will immediately recognize as a great contribution to truly fine performance.

**BENDIX SCINTILLA**

- **Product of the most trusted name in aircraft ignition.**
- **Freedom from the troubles encountered with high voltages . . . distributor flash-over, heat, acids, oxides, moisture, condensation, corona, insulation breakdown, capacitance loading and electrical losses.**
- **Greater freedom from radio interference.**
- **Affected less by weather or altitude.**

**SCINTILLA MAGNETO DIVISION of**
**SIDNEY, NEW YORK**

Bendix AVIATION CORPORATION

**Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.**

**FASTER AND HIGHER CLIMB** performance for North American Sabre is accomplished in the new YF-86D with more powerful GE J-47 turbo jet, large afterburner, and distinctive nose air intake. New nose accommodates radar and radio. F-86A holds official world's speed record of 670 mph. and improved YF-86D is even faster.
(North American Aviation Photo.)

the Vinson-Trammell Act. Since a major part of 1949 and 1950 fiscal year earnings are subject to renegotiation, there has been no official interpretation that would indicate the level of profits to be allowed under renegotiation. It is estimated that the aggregate net profit for the industry *before renegotiation* will be slightly higher than in 1948 due to the increased volume of sales. Despite this increase, however, several individual companies will show smaller incomes than in 1948 and losses are indicated for one or two.

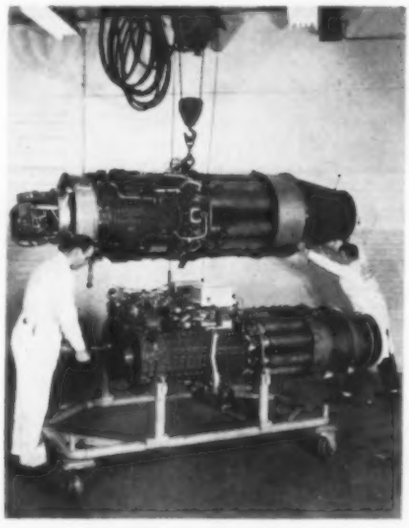
### Development

The gas turbine engine continued to be the most significant development in modern combat planes. With its continued development, substantial increases in power output, reliability, and economy accounted for improved operational efficiency in the planes of the armed services. Jet flights across the Atlantic demonstrated increased operational flexibility, and some of the aircraft were flown to England to be modified for in-flight refueling in an effort to extend their range for escort and ground support.

Several new fighters and one bomber were announced by the Air Force and Navy. All were of advanced design, to accommodate the power of the turbo-jet, turbo-prop, and rocket engines and to provide the integrity of structure and equipment necessary in this era of transonic speeds. Many of the new features in these airplanes are extremely radical when compared to the World War II aircraft, but all are proving valuable aids in solving the designers' requirement to provide high speed, long range, and high altitude performance in the same airplane.

The non - stop - round - the - world flight of the B-50 using aerial refueling, the flight of the B-47 from coast to coast at an average speed of 607 miles per hour, the longest carrier-launched flight ever made—over 4,800 miles by the P2V—flying from the Atlantic to the Pacific, and the dropping of 84,000 pounds of bombs in one mission by the B-36 were some of the outstanding achievements in military aeronautics of the year. American transports continued to set new speed records for scheduled commercial airlines throughout the world.

The year 1949 saw the difficulties encountered in the expansion of 1948 generally solved with new personnel trained and the newly developed manufacturing techniques functioning smoothly. Production rates improved and cost increases were held to a minimum despite the increasing complexity of the airplane and the general increases in labor and material costs. The importance of producibility was emphasized in all the designs introduced during the year in an effort to reduce the normal time lag development and production.



**WORLD'S MOST POWERFUL TURBO-PROP** engine for size and weight is this new Allison XT40, four of which will power the Navy's new XP5Y flying boat. It has two axial-flow gas turbine power sections driving a dual rotation propeller through a common reduction gear and each power section can be operated independently for most efficient cruising. Use of an extension propeller drive shaft permits "burying" of engine in wing. The power plant develops two horsepower per lb. of engine weight, including reduction gear and extension shaft. Small size of XT40 is compared in photo (foreground) with single J35 turbo jet engine suspended on cable.
—(Allison Photo.)

The industry employed during 1949 approximately 218,000 people, slightly over 168,000 in airframe plants, somewhat over 41,000 in engine plants and about 8,500 in propeller manufacturing.

### Statistics

Statistics covering airframe weight, employment and sales and profits for 1946-1949 are as follows: (The sales and profits cover 15 major airframe manufacturers. Statistics for 1949 are estimates.)

**AIRFRAME WEIGHT, LBS.**
(Entire Industry)

| | Total | Military | Civil |
|---|---|---|---|
| 1946 | 38,394,400 | 12,879,000 | 25,515,400 |
| 1947 | 29,255,400 | 11,402,000 | 17,853,400 |
| 1948 | 35,232,400 | 25,149,900 | 10,082,500 |
| 1949 | 34,500,000 | 28,000,000 | 6,500,000 |

**EMPLOYMENT**
(Entire Industry)

| | Total | Airframe | Engine | Propeller |
|---|---|---|---|---|
| 1946 | 196,462 | 163,259 | 33,203 | N. A. |
| 1947 | 180,262 | 147,131 | 33,131 | N. A. |
| 1948 | 213,168 | 166,687 | 38,427 | 8,054 |
| 1949 | 218,000 | 168,000 | 41,000 | 9,000 |

**SALES IN DOLLARS**
(Fifteen Companies)

| | Sales | Net Profits (after contingencies) |
|---|---|---|
| 1946 | 722,896,000 | L 3,009,000 |
| 1947 | 848,244,000 | L 32,903,000 |
| 1948 | 1,185,893,000 | P 16,814,000 |
| 1949 | N. A. | N. A. |

### Outlook for 1950

Although many of the recommendations of the Congressional Air Policy Board and the President's Air Policy Commission have been implemented, those dealing with procurement of aircraft, the establishment of recommended minimums of strength of the services, and the establishment of an adequate industrial base capable of effective expansion in the event of an emergency have not been met. This is one of the vital issues that faces us during the coming year.

It appears probable that production measured in terms of airframe weight will be increased during 1950. Deliveries from the orders placed in fiscal year 1949 continue with the heavier aircraft coming off the production lines for the services. Although it is doubted that unit deliveries will increase and may even be reduced, it is estimated that airframe pounds produced will increase by about 3,000,000 pounds while civil aircraft deliveries will drop off about 1,000,000 pounds.

This estimate takes into consideration the impounding by the President of the Congressionally approved $435,000,000 scheduled for aircraft procurement but makes no allowance for any further reductions by the Secretary of Defense. It assumes that the cutbacks indicated by the economy measures instituted by the President and the Secretary of Defense will not affect operations appreciably until 1951. It is possible that efforts to phase the services' 1950 program into that proposed for 1951 may result in additional reductions that would invalidate this estimate.

Despite the improved financial positions of the airlines during 1949 it is probable that production of commercial transports will fall off from 160 to about 120 units, including approximately 40 small executive type transports.

### Labor Costs

Two factors in particular add to the normal difficulties associated with projecting the industry's financial condition in 1950. The first of these is the previously-discussed uncertainty about the level of military sales and production, because of the economy drive now under way in the Federal Government. The other factor is the continued uncertainty over the trend of labor costs in the industry.

Hourly wage rates have continued to rise in the aircraft as well as other industries. In recent months the average hourly earnings for aircraft and parts plants have been about $1.55 per hour, compared with the 1948 average of $1.49. In addition, there was pending under the Walsh-Healey Act a redetermination by the Secretary of Labor of the prevailing minimum wage that must be observed by all aircraft plants with government contracts. If the rates advocated by the union in this proceeding should be approximated or allowed in full by the Secretary of Labor, this would bring about an appreciable increase in costs, which would have to be passed on to the government customer by the industry.

Fringe benefits such as pension plans and other security items will also continue to increase labor costs in the industry as such benefits are extended to an ever-growing proportion of the industry's employes.

Employment levels during 1950 will probably decrease slightly from the 1949 total of 218,000 since the major build up of the labor force occurred during 1949. This estimate again could be too optimistic since cutbacks in military purchases traditionally cause almost immediate cutbacks in employment. ★ ★ ★

# Can Airmen Survive the Theorists?

**By CHARLES A. LINDBERGH**

*Thoughts shared by many in aviation were expressed last month by Charles A. Lindbergh when he accepted the 1949 award of the Wright Brothers Memorial Trophy from the Wright Brothers Memorial Trophy Committee and the National Aeronautic Association at the Aero Club of Washington's annual Wright Dinner. "For significant public service of enduring value to aviation in the United States" he was selected for the award, and his services were outlined as beginning with his epochal 1927 solo trans-Atlantic flight and continuing even now with his current position as special consultant to the U. S. Air Force. Lindbergh's statement acknowledging the award follows in full:*

ORVILLE and Wilbur Wright will always inspire the men who follow them in aviation. To be awarded the trophy which bears their name is an honor I appreciate beyond the ability of my words to describe.

Looking at the model of that early plane brings conflicting emotions to my mind. We who meet on the anniversary of Kitty Hawk have marvelled at the growth and changing forms of aircraft. Many of us have seen, with our own eyes, the metamorphosis of the Wright biplanes into supersonic prototypes with close to thirty times their speed. Now, we plan huge rockets that will travel, faster than a rifle's bullet, for thousands of miles. And we talk about flying to the moon as freely as people talked about flying from one city to another before that December day at Kitty Hawk.

The Wright brothers, with their first power-driven flights, opened the door to all this progress. They are symbolic, to us, of the pioneer—his daring, his vision, his fortitude. They represent a quality in western man without which our civilization could not survive. For generations, we have based our progress on discovery, and protected our nations through the invention and use of new tools. Today, whether it be for peace or war, we westerners depend on wings. We depend on past, present, and future contributions of men like the Wright brothers.

*But the Wright brothers, being pioneers, also symbolize a quality of life which withers in an atmosphere of scientific progress.* As they represent progress on the one hand, they represent the "log cabin days" of aviation on the other. And from the log cabin, there is much that modern man could learn.

One need only glance at a picture of their first flight to realize the difference between the life they lived and ours. Orville lies prone in the open air, on top of his lower wing; while Wilbur runs with him, against the wind, over a sandy flat. While their minds were studying structures and the aerodynamics of flight, their bodies were in contact with sun and earth, and weather.

We hear mariners speak nostalgically of the era of iron men and wooden ships. In a similar sense, *I sometimes feel that the decline of aviation began with the self starter and the closed cockpit.* Before the advent of these items, and the instruments that went with them, flying was an art that required the use of the body and all its senses. In that early environment, a man could keep in better balance. He spent much of his time in the country, for he flew from farmers' fields. He experienced the beauty of sunset. His skin felt the freshness of rain. He had to know texture of earth and shading of grass to keep from nosing over in a mire. Pulling a stubborn engine through kept his muscles in condition. He relied on sight of horizon, touch of control, sound of engine. He might even test a battery by taste.

Now, flying has become a science in which the mind ascends, and the body becomes an increasingly unnecessary part. Hurtling through the air in a jet fighter, or vibrating through cloud on multi-engine instruments, hour after hour, I realize how intellectual flying has become. We no longer sense the qualities of earth and air. We look at almost everything through print and glass. Today, we press a button to engage an automatic pilot to carry us across an unseen ocean, or to destroy an unseen city below.

*Our engineers crowd air-conditioned drafting rooms, and seldom use their hands to test their theories.* Our pilots fly in supercharged and heated cabins. They judge their weather through ticker tapes and crayoned paper sheets. As we have progressed in the science of aviation, we have separated ourselves from the balanced quality of life.

The dream of the Wright brothers was to build a power-driven airplane,

(*Continued on page* 28)

# Certified Beechcraft Service

When you want something "special" for your twin-engine Beech, your best bet is a Certified Beechcraft Service Station. The mechanics and technicians here KNOW your type plane because it is with that type that they do most of their work.

Only factory certified service stations are authorized to make Beech-directed modifications. The companies listed get Beech bulletins promptly and follow them to the letter. They have direct, ready access to official Beech data and to Beech experts when help is needed to solve particularly knotty problems.

**When you land at these Certified Beech Service Stations, you don't get "just service"—you get "SUPER service."**

**Aircraftsmen, Inc.**
Will Rogers Field
Oklahoma City, Oklahoma

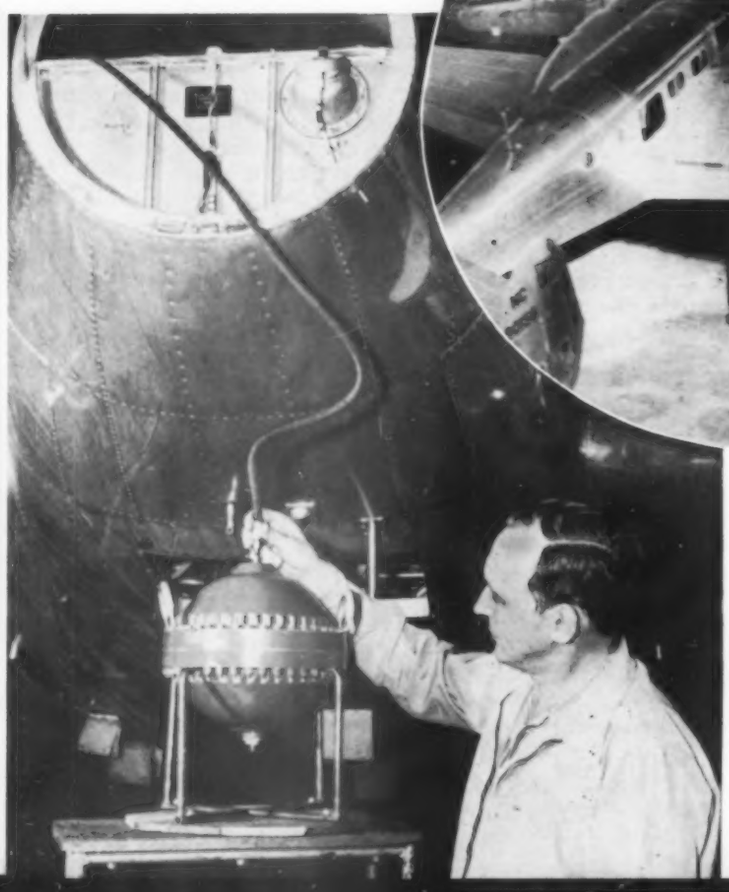
**Amarillo Aircraft**
Tradewind Airport
Amarillo, Texas

**Anderson Air Activities**
General Mitchell Field
Milwaukee, Wisc.

Truax Field
Madison, Wisc.

**Atlantic Aviation Service**
New Castle County Airport
Wilmington, Delaware

**Atlantic Aviation**
Teterboro Air Terminal
Teterboro, New Jersey



**Butler Co., Aviation Division**
Municipal Airport
Chicago, Ill.

Washington National Airport
Washington, D. C.

**Francis Aviation**
Capitol City Airport
Lansing, Michigan

**Harte Flying Service**
Municipal Airport
Wichita, Kansas

**Ohio Aviation Company**
Dayton Municipal Airport
Vandalia, Ohio

**G. E. Penn**
Gregg County Airport
Longview, Texas

**J. D. Reed Co., Inc.**
Municipal Airport
Houston, Texas

Love Field
Dallas, Texas

New Orleans Airport
New Orleans, La.

**Roscoe Turner Aeronautical Corp.**
Municipal Airport
Indianapolis, Ind.

**Southwest Airmotive**
Love Field
Dallas, Texas

**Tulsair Distributors, Inc.**
Hangar 5, Municipal Airport
Tulsa, Oklahoma

**Wings, Incorporated**
Wings Field
Ambler, Pennsylvania

Philadelphia International Airport
Philadelphia, Pennsylvania

## AGRICULTURAL PLANE

*(Continued from page 17)*

7. Evaluation and modification of present dispensing equipment;

8. Design and testing of new dispensing equipment;

9. Construction and installation of dispensing equipment for prototype airplane.

The National Advisory Committee for Aeronautics last month agreed to proceed with flow pattern studies, to collect and review information bearing on the drop size problem and advise on lateral control and cooling problems.

During the past few years considerable research has been carried on by the U. S. Department of Agriculture Bureaus of Entomology and Plant Quarantine and Plant Industry, Soils and Agricultural Engineering, covering such matters as spraying and dusting equipment, particle size and coverage, deposit and atomization studies, application procedures and airflow patterns. These programs, being carried on at numerous USDA stations from Beltsville, Maryland, to Forest Grove, Oregon, will now be correlated with the A. & M. project. Experimental models of dispensing equipment will be constructed by the working group at A. & M. College simultaneously with the design and construction of the experimental aircraft.

There is no more important element in the entire program than the pooling of all the known sources of information and efforts of the far-flung interests who have been working on various phases of the highly complicated and technical aspects of agricultural aviation. Without the cohesion now attained, or without the centralization of the widely scattered but closely related efforts being made to bring order out of chaos, very little would be accomplished by designing and building a new aircraft. So, if the prototype which issues forth from the design group at A. & M. is a queer looking machine, unlike anything now flying, don't be surprised. There will be scientific fact and engineering genius behind every aspect of it.

A great deal of credit for the project goes to the National Flying Farmers Association (which for two years has urged the development of such an aircraft and improvement in dispensing equipment) and to the Civil Aeronautics Administration and the Department of Agriculture. The initial outlay of funds, totaling $50,000, was released in December by CAA Administrator Del Rentzel, whose personal drive and keen interest in the project broke through the gen-

*(Continued on page 29)*


# AIR ASSOCIATES

## POSITIVE POSITIONING ACTUATORS

Positive positioning control is assured in Air Associates actuators by using internal load-limiting switches. The back-pressure exerted adjusts the actuators automatically. This counteracts backlash and eliminates surface flutter as well as switch adjustments at installation and in service. Air Associates non-jamming actuators meet, or exceed, applicable AN specifications.

Air Associates designs and manufactures *electronic, hydraulic, electro-mechanical, pneumatic and miscellaneous* devices.

Also, twenty-two years' experience supplying the needs of manufacturers, airlines and airport operators has established Air Associates as the leading distributor of aircraft supplies.

AIR INC. ASSOCIATES

*Write For* **ENGINEERING CATALOG**

**AIR ASSOCIATES**
INCORPORATED
Teterboro, New Jersey

**DALLAS, TEXAS • CHICAGO, ILLINOIS • GLENDALE, CALIF.**
**EXPORT DEPARTMENT • CABLE ADDRESS 'AIRSOC,TETERBORO'**

*Serving the Nation in Aviation*

CLEAR COMMUNICATION
OMNI NAVIGATION
WITH ARC AIRCRAFT RADIO CORPORATION
VHF
EQUIPMENT

Get static-free communication and the added reliability of omni range navigation by installing A.R.C.'s Type 17 2-way VHF Communication and Type 15B Omni Range Navigation Equipment. With the 15B tuned to the VHF omni stations now covering the country, you fly directly in less time. You can receive weather broadcasts simultaneously with the navigation signals—*static free!* The 15B takes the work out of navigation and provides long, trouble-free life. The Type 17 provides an independent communication system for use while the 15B is busy providing navigational information. Other A.R.C. equipment provides LF range and broadcast reception, and rotatable loop navigation.

All A.R.C. Airborne equipment is Type Certificated by CAA. It is designed for reliability and performance—not to meet a price. Installations for both single and multi-engined planes are made only by authorized service agencies. Write for further details or name of your nearest A.R.C. representative.

ARC
Aircraft Radio Corporation
BOONTON, NEW JERSEY
Dependable Electronic Equipment
Since 1928

# Are You a V.A.P.?

**Here's a unique organization without officers, meetings, politics, by-laws or dues. It's the Veteran Air Pilots, whose membership list reads like aviation's Hall of Fame. If you qualify they welcome your application.**

By JIM WHEELER

IF you have a minimum of 1,500 certified solo hours and have been flying for a minimum of 10 years, you're eligible for membership in one of aviation's most unique organizations—the Veteran Air Pilots. The organization has no officers, no dues, no resolutions, no politics, no blackballs, no honorary members. Members pay for their emblems or rings which are known as "awards" and are made of 14-karat gold, set with genuine oriental sapphires and 58-facet diamonds.

The idea for the organization was conceived by a small group of old-time pilots who thought some means should be devised for recognizing pilots who had flown many hours over a period of years. While the group doesn't hold regular meetings, periodic get-togethers are held at the National Air Races and other aviation functions.

The membership list of over 500 includes such well-known names as Casey Jones, Jimmy Mattern, Jimmy Doolittle, Bennett Griffin, Ed Aldrin, Pop Cleveland, Bob Oertel, Buck Rowe, Alex de Seversky, Ray Shrader, Louise Thaden, Martie and Leslie Bowman, Bill Long, Walter Beech, Aubrey Keif, Larry Fritz, Roscoe Turner, Billy Parker, Phoebe Omlie, Roger Q. Williams, Fish Hassell, Roger Kahn, Bernt Balchen, *ad infinitum*.

Applications for membership should be sent to Leslie P. Huey, Louderman Building, St. Louis, who will supply necessary application blanks. Any pilot who holds a CAA pilot certificate and who has a minimum of 1,500 solo hours and has flown over a period of ten years or longer is eligible for membership and award. The applicant must fill out an application blank and have his flying hours certified by the proper CAA or military authorities. If the application is in order and complete, it is certified and the applicant is assigned a number in sequence and proper membership "bracket" which is determined by number of flying hours.

There are four brackets for the awards. The first bracket is a gold award set with 3 genuine oriental sapphires for pilots with from 1,500 to 2,500 hours; the second bracket is a gold award set with 2 sapphires and 1 diamond for pilots with 2,500-5,000 hours; third bracket member is entitled to wear the gold award set with 1 sapphire and 2 diamonds for pilots with 5,000-10,000 hours. The fourth and highest bracket is a gold award set with 3 diamonds for pilots with 10,000 or more hours. Each pilot-member buys his own award, varying in price from $10 to $30, according to settings.

The design used on Veteran Air Pilots Awards shows a world modelled in relief with the wings allegorical of flight around the world. The Roman numerals I to XII signify the units of measurement of the flights of veteran pilots, as covered by the four brackets of flight experience.

Want to meet some famous VAP members? Here is the first of a series of short biographical sketches which SOUTHERN FLIGHT will publish during the next several issues.

**Colonel Bernt Balchen**

AS assistant to the Commanding General, Alaskan Air Command, Bernt Balchen at 51 is still conquering Arctic weather, a pursuit he started back in 1925 when he

participated in the rescue of Amundsen and Ellsworth after graduating from the Norwegian Navy Flying School in 1921. It was in 1926 that he met Dick Byrd while accompanying the airship "Norge" on the Svalbard mission and returned with Byrd to the U. S., where they teamed up for the second trans-Atlantic flight following Lindbergh's in 1927. Between test-flying jobs in the U. S. 1926-1935, Balchen found time to lead the relief expedition to Labrador for the ill-fated "Bremen," to accompany Byrd to the South Pole, participate in the Viking rescue expedition to New Foundland and to go with Ellsworth on his Antarctic Expedition. Between 1935 and 1940 Bernt was chief inspector of Norwegian Airlines (DNL) and worked out the first commercial air route over the Atlantic.

He joined the Royal Air Force Ferry Command in 1940, flying the first flights out of the West Coast to Singapore. He transferred to the United States Army Air Forces late in '41, where he began one of the most colorful military flying careers in the recent war. He built up Air Base Blue West 8 on Northwest Greenland, commanded 2,500 men in northern Greenland, operated out of Iceland against German bases and U-boats. In '43 he was sent to USAF headquarters in Washington, and in '44 to England as chief for the Allied Air Transport Command for Norway, Sweden, Denmark, Finland and Russia. Under the noses of the Germans he evacuated 3,000 Norwegians from Sweden to England, organized and commanded the dropping of supplies to the military underground in Norway and worked with the Russian Air Force in the Far North. Right after the war he spent a year working with Scandinavian Airlines but in 1948 returned to the uniform of the U. S. Air Force in the Alaskan Command where he serves today.

**Walter Herschel Beech**

THE founder, president and chairman of the board of the Beech Aircraft Corporation has more than 10,000 hours of flying time and has been responsible for developing more than 80 types of aircraft which have received approved type certificates from the CAA. A native of Pulaski, Tennessee, Walt Beech made his first flight in a Curtiss Pusher at Minneapolis in 1914. He served in the Army Air Corps from 1917 to 1920, leaving the service in 1921 to go on his own as a barnstormer and exhibition pilot. In 1922 he went with the old Swallow Airplane Company of Wichita as test pilot and sales representative. A self-liquidating business in those days, promotions were speedy and a year later he was made general manager of Swallow. He entered and won the On-To-Detroit cross country race, the Admiral Fullam Derby Race and the Aviation Town and Country Club of Detroit efficiency contest from 1923-1925.

From '25 to '30 he founded and served as president of Travel Air where he designed the first commercial plane with a completely faired-in engine; qualified as winner in the first Ford Reliability Tour; made the first cross-country flight entirely by instruments; designed Art Goebel's Travel Air "Woolaroc" which won the Dole Race in 1927; developed the Travel Air Mystery S which won the Thompson Trophy in 1929. In 1930 Travel Air


*Fly-fone . . . "The only major improvement in headphones since the first radio was installed in an airplane . . . ."*

**First Officer Jack Slingerland American Airlines**

*Says:* "I have been using a Fly-Fone on regular schedule for over a year, and believe me I wouldn't go back to old-fashion heavy, 'ear-crusher' phones for anything. I have found Fly-Fone to be superior in every way—in comfort, tonal quality and reception. When one spends several hours at a time in the cockpit, the light weight and comfort of Fly-Fone really helps to reduce fatigue. I have found Fly-Fone of particular value when reception is poor. I can often read signals or messages that others can't make out on ordinary phones. Reception in static conditions is better due to the greater sensitivity and lower volume required with Fly-Fone."

**C.A.A. Approved**

**Fly-Fone bears C.A.A. Approved Type Certificate No. 4R2-1 for airline use.**

Fly-Fone weighs **only 2½ ounces**, with cord and plug—only one-half ounce in your ear. Built for service and satisfaction; 90-day service certificate. Standard model $16.95.

**SOUTHWESTERN DISTRIBUTORS**

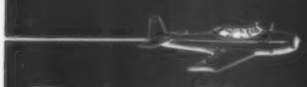
**DAVE RUMPH CO.**

**P. O. BOX 4178 STOCKYARDS STATION FORT WORTH, TEXAS**

**(Located on Meacham Field)**

merged with Curtiss Wright and Beech became president of the new airplane manufacturing division of that company. He founded Beech Aircraft in 1932, from which has emerged some of the world's most famous and successful aircraft. Still active in company and industry affairs, he has just been elected chairman of the Personal Aircraft Council, Aircraft Industries Association. He married Olive Ann Mellor in 1930 and they have two daughters.


No Other Plane Combines So Many Features So Well



Ryan Navion

**John A. Collings**

FEW famous veteran pilots can lay claim to remaining in the employ of one company longer than John Collings, vice president of Trans-World Airlines for operations. He became chief pilot of the predecessor company, Transcontinental Air Transport, back in 1928. He received his primary training at Brooks Field, Texas in 1922, graduating from Kelly in 1923 from whence he did a tour of active duty in the Air Corps, resigning in 1925 to go to work at the Ford Motor Company as test pilot, where he remained until 1928. Collings served as TWA division superintendent from 1929 to 1939, became superintendent of operations in 1939 and vice president in charge of operations for the entire system in 1942.

**Bennett H. Griffin**

THE present Administrator of the Washington National Airport leaped to aviation fame by way of long distance and globe-circling flights in the Lindbergh era but his real accomplishments have been made in less spectacular phases of aviation. Benny Griffin started flying in World War I and saw service in France and Italy. It was in 1932 that he became world famous when, with Jimmy Mattern, they set the non-stop record to Berlin. Griff showed up in commercial aviation as a salesman for the Nebraska Aircraft Corporation. He operated a successful flying service

NOW YOU CAN GET 160 MPH AT LOW COST

High performance at low cost is yours in the new 2-pl. Meyers 145, now being delivered by General Aeronautics, Inc., of Fort Worth and manufactured by old-line Meyers Aircraft of Tecumseh, Mich.

Satisfied owners report 160-mph. cruising on less than 9 gals. per hr. Fully licensed by CAA and powered with the improved new Continental 145, the new 2-pl. Meyers is priced at $5,995 F. A. F., fully-equipped.

You, too, can enjoy the new Meyers 145 with 160 mph. cruising speed, necessary payload and range, more comforts, stability and unrestricted ruggedness—FOR HALF THE COST OF SIMILAR PERFORMANCE IN LARGER PLANES.

A demonstration will convince you. Inquire now for maximum airplane usefulness at minimum costs all the way.

MEYERS AIRCRAFT CO.
Manufacturers of Fine Airplanes
Tecumseh, Mich.

GENERAL AERONAUTICS, Inc.
Meyers Distributor for Texas, N. Louisiana and Part of N. Mexico
Meacham Field Fort Worth, Texas

in Oklahoma City, which was purchased by Curtiss-Wright and managed by Griffin until 1933 when he became an aeronautical inspector with the old Bureau of Air Commerce, predecessor organization of the CAA. In 1935 he was assigned to the CAA Indianapolis experiment station to direct work on a new instrument landing system. Four years on that task brought him to the job as chief of Inspection Standards Section, a newly created post in which he built up from scratch a program for training new inspectors and standardizing old ones in procedures. This work became so important that an aeronautical center was established in Houston in 1941 under his direction. He left in 1942 and entered the Air Force where he served as a Colonel and Command Pilot in the ATC until 1946, returning to the center in time to direct its transfer from Houston to its present expanded quarters on Will Rogers Field, Oklahoma City.

**George A. Wies**

THAT tall sandy-headed hunk of humanity you see all over the country demonstrating those remarkable Sperry developments such as the Zero Reader is George A. Wies, sales engineer for Sperry Gyroscope Company of Great Neck, New York. George was appointed a flying cadet in June, 1922 and graduated from primary at Brooks Field in 1923 and from advanced at Kelly where he emerged in 1924 with his shavetail commission. After specializing in attack aviation for a year he left the Air Corps and barnstormed in his own English Avro 504K during 1924. He also did some fancy flying for the old Curtiss Exhibition Company at Mineola, N. Y., for the Fox Film Corporation and for the Garden City-Balsams Airline, believed to be the first scheduled airline in the U. S. It flew daily schedules between Garden City and Dixville Notch, New Hampshire. In 1925 Wies was appointed test pilot for the Pioneer Instrument Company and simultaneously carried on his own airplane sales and service company. He joined Bob Gross (the Lockheed Gross) doing sales and test work with Mr. Gross' Viking Flying Boat Company and later with the Lockheed Company. He joined United in 1933 and flew the New York-Chicago and Chicago-Kansas City runs, leaving the airline in 1935 to take the job as pilot for the New York *Daily News*. Before he joined Sperry in 1940, he flew a Grumman belonging to Robert Lehman. He was appointed Sperry sales engineer in 1945 after five years as flight research engineer.

**Lloyd O. Yost**

LLOYD O. Yost's personal letterhead bears one succinct word under his name—"FLYING." Born at Myerstown, Pennsylvania, in 1897, Yost enlisted in the aviation section of the U. S. Signal Corps in November, 1917, in which he was commissioned 2nd Lieutenant R. M. A. in 1918. After his Signal Corps discharge he barnstormed during 1919, '20 and '21. He settled down to airport operations and ran Millard Flying Field, Palmyra, Pennsylvania, through 1926, moving to Conyngham, Pennsylvania, Airport which he operated from '26 to '31. During the winter seasons of those years he operated at Pinehurst, North Carolina. He is now associated with R. D. Clemson and Clemson Brothers, Inc., following 58 months in the Air Force during World War 2 as Colonel, commanding the 58th Air Service Group. His permanent home is now in Clearwater, Florida.

**Larry G. Fritz**

WITH nearly 12,000 hours of commercial time under his belt, Larry Fritz holds transport pilot rating No. 337 and a horsepower rating up to 10,200. He soloed in February of 1918 while with the Aviation Section of the old Signal Corps, and graduated from Kelly in the Class of '23 after a two-year course in bombardment, attack, pursuit and observation. Fritz joined Ford Airways, flew the line from 1925 to 1927, and is still the proud holder of Contract Air Mail Pilot Certificate No. 4. He was chief pilot for the old Maddux Air Lines between '27 and '29, graduating to vice president for operations of Halliburton's Southwest Air Fast Express during '29 and '30, when he left to join TWA. A brilliant twelve-year career with TWA ended in 1942 when he joined the Army Air Force Air Transport Command with a command pilot rating. He boosted his total military flying time to 2,280 hours, wound up with a B. G. star as Commanding General of the ATC's North Atlantic Division. Leaving the Air Force in '46, he became vice president for operations, American Airlines, in which capacity he serves today.

**Reed Knight**

ANOTHER Veteran Air Pilot who started out with a military aviation career, of a later and younger vintage, is Reed Knight, who heads up flight operations for Chicago and Southern Airlines with headquarters at Memphis. Reed graduated from Air Corps primary and advanced flying schools at March and Kelly, stepping forth in 1930 with wings and commission. After a tour of active duty with the 2nd Bombardment Wing at Langley Field, Virginia, he went into civil aviation as pilot for the old National Air Transport Company. From 1932 to 1935 he served as instructor and advisor at Hangchow, China, for the Central Flying School, Central Government of China. He became the personal pilot for Chinese Minister of Finance Dr. T. V. Soong and also for Dr. H. K. Kung. Leaving China in 1936 he went to work as pilot for Chicago and Southern, subsequently being promoted to superintendent of flying and to his present position. Reed is still an active airline pilot and maintains his flying status on the line.

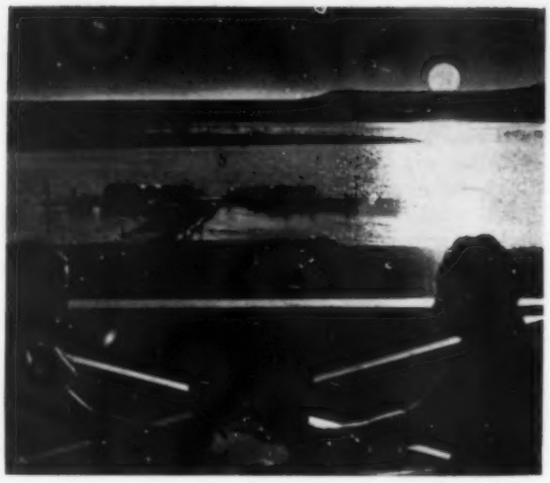
★ ★ ★

(Ed Note: This series of V. A. P. Biographical Sketches will be continued next month.)

Costello Island INC.

## For Something to Do Besides Fly

★ Land on our island's three airstrips and enjoy famous Possum Kingdom Lake. . . . Located 60 miles west of Fort Worth. ★ Completely modern duplex cottages, tastefully decorated and furnished. . . . Innerspring Mattresses and large brick fireplaces in each unit. ★ Dining room with country club style steaks and chicken dinners at reasonable prices. ★ Bass, Blue Gill, Crappie. . . . Duck and Deer Hunting in season. . . . Metal Boats with Outboards. . . . Daily and weekly rates. . . . Bring your family, friends or flight parties.



## *Costello Island, Inc.*

*"For the Discriminating"*

60 Miles W. of Ft. Worth  Tel. Possum Kingdom 19F2  Graford, Texas

E. BEDFORD JONES, Operator



## TWO OUTSTANDING BELLANCAS FOR SALE

CRUISAIR SENIORS

150 hp. — 150 mph.

NC74420-Model 14-13-2 (Small fins) Mufflers and dual cabin heaters, soundproofing, outside baggage compartment, steerable tail wheel, aeromatic propeller, GE two-way radio, sensitive altimeter Kollsman, vertical speed indicator, bank and turn, 5 - 1 minute electrically operated flares, 1 - Grimes 6" retractable landing light, special upholstery, special finish. All above extras factory installed. Total time—airplane and engine — 452:48 hours. Licensed to July 1, 1950.

**$3,500.00**

NC74422-Model 14-13-2 (Small fins) Mufflers and dual cabin heaters, soundproofing, outside baggage compartment, steerable tail wheel, aeromatic propeller, GE two-way radio, sensitive altimeter Kollsman, vertical speed indicator, bank and turn, clock—8-day with lapsed time hand, dual ventilators special upholstery. All above extras factory installed. Total time — airplane and engine — 48:37 hours. Licensed to November 30, 1950.

**$4,000.00**

Will trade and finance

## Weatherly-Campbell Aircraft

Highland Park Airport, Route 7, Dallas, Texas. Phone Emerson 6-1573


## CAN AIRMEN SURVIVE?

(*Continued from page 21*)

and to fly it successfully. They accomplished that dream; and we, their disciples, have perfected it to a high degree. Now, as in so many phases of modern life, we are faced with a different problem. How are these perfected aircraft to be used for the benefit of man, to raise his standards in the deeper sense?

Great factories full of workers, great speeds over the surface of the earth, great destructive power, such items are impressive; they are even essential to our survival in these chaotic years. But in themselves, they do not contribute to the quality of human life. *We must not let science hypnotize us into believing that simply by sitting in front of desks and drawing boards and instruments all day, we are contributing to the character of man.*

Personally, I am convinced that man cannot thrive indefinitely in the hothouse atmosphere we are creating. I believe that for permanent survival, he must balance science with other qualities of life, qualities of body and spirit as well as those of mind—qualities he cannot develop when he lets mechanics and luxury insulate him too greatly from the earth to which he was born. *We must realize that even vision and judgment depend upon the body as well as on the mind.* It is for this reason I say that the Kitty Hawk plane stirs conflicting emotions within me. As it symbolizes our progress, it also symbolizes qualities of life we have left behind and which, to be successful in a deeper sense, we must retrieve.

How are we to retrieve these qualities? Certainly we cannot turn back the clock. Certainly it cannot be done in any revolutionary way without greater loss than gain. I believe it can be done only through a re-orientation of our standards, only by placing the character of man above the value of his products. If we are to be finally successful, we must measure scientific accomplishments by their effect on man himself. ★ ★ ★

## AIR REPORT

(*Continued from page 7*)

### On To Miami

If you can get away, don't miss the 18th Annual All American Air Maneuvers in Miami, Florida, January 13-15. Midget racing for the Continental Trophy, the Gulf-National aerobatic contest, the air cruise to Havana and sights such as the world's first jet-powered lightplane, the Fouga Et Cie Cyclone from France, promise a worthwhile program. According to latest estimates, approximately 200 planes are expected to participate in the lightplane air cruise to Havana, Cuba. ★ ★ ★


# PRECISION . . .

In the Rebuilding of Aircraft Engines and Engine Accessories Is Essential to a Good Reputation. Our Customers Have Proven the Reliability of Engines and Accessories Rebuilt by . . .

## PRECISION AEROMOTIVE

**CORPORATION**

MUNICIPAL AIRPORT  WYDOWN —9-1234—  HOUSTON 17, TEXAS



**AIRPLANES**

Send for Free List

World's largest stock personal and light commercial.

Lowest Prices — Domestic and Export.

We do everything except pay for your plane.

Be thrifty in 1950!

Dealers write for Dealer discount setup.

VEST AIRCRAFT CO. WHOLESALE

Field and Offices: Box 38, Capitol Hill Sta. Denver, Colorado

## AGRICULTURAL PLANE

*(Continued from page 23)*

eral entanglement of red tape and started the project rolling. The funds are out of the $1,450,000 appropriated by Public Law 179 of the present Congress for CAA technical development. The cash allocation to the A. & M. project received the endorsement of Senator Pat McCarran and the Bureau of the Budget. Primarily responsible for the original catalytic agent work in Washington are John H. Burke, Oklahoma Flying Farmer and fixed-base operator, and Eldon Stout, State Director of Aviation for Oklahoma, who actually sold the idea. L. C. Elliott, CAA Fourth Region Administrator, and Wm. M. Berry, assistant regional administrator for aviation development, deserve a great amount of credit for bird-dogging the program through CAA.

Although it is only the beginning of a long-range program covering at least two to five years of work, if the full implications of benefits to agricultural aviation are realized, improved dispensing equipment and a prototype airplane should be ready for experimental use late this year. There has been some skepticism and opposition to the program but in nearly every case such opposition has been overcome after critics clearly understood the thinking behind the project, its immediate and long-term objectives and the assurance that it will help rather than compete with anyone in private industry, which has always been super-sensitive to any development work in the lightplane field by the CAA. Administrator Rentzel recently told the industry that the CAA will not and does not contemplate competing with private enterprise aeronautical manufacturing organizations. The Aircraft Industries Association, always cool and actually antagonistic to proposals that the CAA spend any funds or set up any program for civil aircraft development work, has itself petitioned the CAA to undertake a program of jet transport development, which would run into the millions. Since this petition is an about-face from its traditional position, there's a possibility that the A. & M. project will be in line with the AIA's new policy and acceptable to the Association as a group instead of acceptable only to a few of the individual companies as it is at this writing. ★ ★ ★


### A PILOT VIEWS THE FLY-FONE

BY C. GILBERT SPERRY,
United Air Lines Captain

**When a friend first handed me a Fly-Fone and suggested that I try it on my next trip, I was doubtful that such a gadget would interest me. But he was serious so I experimented with it, the Fly-Fone being CAA-approved for airline use.**

**Following suggestions, I ran the cord up through my shirt and out the collar, slipped the hearing-aid mold into my ear with a half twist like a Dzus fastener, clipped the cord to my belt and plugged it into the jack box. But I neglected to change the volume setting on the receiver and a very loud earful of Spokane on-course signal made me duck and reach for the volume rheostat. Then with the volume well down, I started experimenting. Range signals came in with a clear and readily distinguishable twilight signal, and with obvious and rapid perception of diminishing and increasing signal strength as we approached or receded from the station. On company frequency we found no need to strain to read, and signal-strength-to-static ratio was definitely an improvement over headsets because of the lower volume which can be obtained with the Fly-Fone.**

**That first experiment was ten months and over 800 hours ago and every hour since has been flown with Fly-Fone. I hope I never have to go back to the old ear crushers. FLY-FONE is manufactured by Air Market Associates, P. O. Box 750, Dallas, Texas, and is available nationally from Distributors and Dealers.—(Adv.)**


### Airmen's Calendar

Jan. 13-15—All-American Air Maneuvers and Continental Motors Trophy Race, Miami.

Jan. 16-17—Seventh Annual Miami-Havana Lightplane Cruise sponsored by Florida Air Pilots Association.

Jan. 17-19—University of Illinois 2nd Annual Custom Spray Operators School, Urbana, Ill.

Jan. 23—Institute of Aeronautical Sciences Annual Honors Night Dinner, Hotel Astor, New York.

Mar. 1-2—Louisiana Aviation Conference, Washington-Youree Hotel, Shreveport, La.

Mar. 7-8—2nd National Agricultural Aviation Conference, sponsored by National Flying Farmers Association and CAA 4th region, Hotel Texas, Ft. Worth, Texas.

Mar. 7-8—6th Annual Non-scheduled Operators Conference, sponsored by CAA 4th region and SOUTHERN FLIGHT, Hotel Texas, Ft. Worth, Texas.


**Record... or ROUTINE?**

There is reason to believe that endurance flights like those of Barris and Riedel, and more recently Jongeward and Woodhouse, take more out of the man than they do out of the machine. Teardown and measurement of the two Continental C145's which kept these teams aloft 1,008 and 1,124 hours respectively showed both engines in shape to go on running indefinitely.

All dimensions were still within original tolerance limits. Piston rings were free in their grooves. Even cylinder walls showed negligible wear, in spite of the fact that each piston had traveled thousands of miles within its bore, separated from the latter only by the thinnest film of oil.

This freedom from excessive wear after six weeks' non-stop running suggests that for the engines, at least, the flights were more or less routine. That may explain why owners whose aircraft must pay their way—farmers, ranchers, business and industrial users, and most recently of all, local airlines—show a steadily-growing preference for planes with Continental power.

CONTINENTAL MOTORS · Power for the Nation · AMERICA'S STANDARD

**Continental Motors Corporation**

AIRCRAFT ENGINE DIVISION
MUSKEGON, MICHIGAN

# MORE PROFIT "ON THE LINE"

Personnel of Keith Kahle Aviation at Will Rogers Field, Oklahoma City, take pride in giving quick, courteous and competent service. In-and-out time here is short. Experienced, licensed mechanics have every facility for repairs and overhauls. *Texaco Aviation Lubricants and Fuels* are used and sold exclusively—and have been for more than ten years.

Speaking as both fixed base operator and President and General Manager of Central Airlines, Inc., Keith Kahle says: "Texaco has time and again gone out of its way to help us simplify our lubrication and maintenance procedures and organize them efficiently. This freely rendered service and the reliable quality of Texaco Products have been big factors in building a profitable operation."

## TEXACO AVIATION LUBRICANTS AND FUELS give you 3 big advantages:

You make your service line more profitable when you handle Texaco because (1) fliers throughout the 48 States know and trust the Texaco name; (2) there is a complete *line* of *Texaco Aviation Lubricants and Fuels* to meet every need; and (3) Texaco *quality* has been proved by millions of miles of superior performance.

Line up with the leaders and handle Texaco. Texaco is preferred throughout the industry . . . by progressive airports, by leading engine and aircraft builders, and by the airlines. In fact —

*More revenue airline miles in the U. S. are flown with Texaco Aircraft Engine Oil than with any other brand.*

Let a Texaco Aviation Representative show you how Texaco can build business for you. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, *Aviation Division*, 135 East 42nd Street, New York 17, N. Y.

TEXACO

## TEXACO Lubricants and Fuels

FOR THE AVIATION INDUSTRY

TEXACO presents MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.

VOL. XII, NO. 5 JANUARY, 1950

# Modern AIRPORTS

THIS MONTH'S MODERN AIRPORT is the large Mexico City airport, which is attracting a growing volume of American tourists in private aircraft as well as additional U. S. airline schedules. North is at top of photo, and terminal is at lower left center along hangar line. Area at upper end of hangar line is location of Aero Servicios, large fixed-base operation with six large hangars and which rendered excellent service to SOUTHERN FLIGHT staffers on their recent visit in a Bonanza. Altitude of airport is 7,340 ft. Principal hard-surfaced runways are of 8,100-ft. and greater length. The airport is almost always being improved and workmen will generally be found repairing the ramp and runways. However, the tower speaks English and no traffic difficulties should be encountered by radio-equipped aircraft.

—(Photo furnished by Aero Servicios.)

## In This Issue

Questions and Answers for Airport Operators . . . . . 32

# Questions and Answers For Airport Operators

### How to Revive a Dead Airport

**QUESTION: Recently having acquired a business in this town, I moved my family here last month and bought a home. I picked this business and this town after careful research and analysis led me to believe that it was a growing small community and had a future big enough to warrant my staking my future on it. Now I could have selected any one of five other towns in a two-state area, since my brothers and I own a chain of similar businesses. We had explored each of these towns on a trip in our 4-place airplane. The airport here was not spectacular but it had a 60x80 hangar, an operator, and A & E mechanic. A week after I got here, the operator closed up shop and moved away, the A & E is working in a garage and the gas tanks are empty. When I want to go somewhere, I go out to the hangar, get the key out of the mail box, unlock the side door, push the hangar doors open, and with the help of my brother roll out the airplane, shut the doors, lock up the hangar, put the key in the mail box, fly to an airport thirty miles away, gas up and finally get on my way. It's pitiful. And nobody apparently intends to do anything about it. The mayor says the city has no money to hire anyone to operate the facilities and that we will have to wait until an operator comes along. When the operator moved his equipment out, that left only four other planes here. I talked to a doctor who owns one of these and he says he's going to sell it since nobody gives a damn about aviation here anyway. What's the answer? Make it good. I want to show it to the mayor.**

ANSWER: What are you trying to do, blame the mayor alone? Don't do it. If your town has a public airport and a hangar, it is apparent that once upon a time aviation had sufficient standing in the community to warrant the city to acquire the field and build the hangar. What dampened that early enthusiasm? Was it a bad local accident or series of accidents? Was it because the town was oversold on aviation? Was it because the people felt that the existence of an airport and a hangar would automatically spawn aircraft? Was the operator addicted to sitting on his fixed base? Or did he find it too much of a job for one man in the face of a common lethargy in the public and that includes the so-called flying public?

An operator alone can't carry aviation in a town. He has to have public support and of course he has to inspire it. Probably one of our greatest weaknesses in extending our system of airports has been our failure as an industry to realize that we needed also to form an organization for promotion and merchandising. At the time we were devoting all our local energies to the planning, engineering and construction, we forgot to plan for the actual operation and promotion of the physical facility we were constructing. We are still slow in realizing that at the local level. The result is that we build or acquire an airport and hire an operator, pat him on the back, say "God bless you, my son," and forget him.

No one in the local government is directed to devote any particular time and energy to the airport and the people who own aircraft or rent them take the whole thing for granted. Then when it's all folded up and quiet again with the gophers sunning themselves on the runways and the birds nesting in the hangar, someone wakes up and wonders why.

You're going to say that we haven't answered your question and you're right. What would we do in your case? Just this. Get that doctor who says he's going to sell his airplane, get the three other owners, get every one who ever owned or used an aircraft in your town, get the Chamber of Commerce manager, and as many of the key men in your town as you can, all to sit down and work on the problem. Do it as a group. Encourage multiple ownership or flying clubs among those who no longer fly. Start your Chamber of Commerce working on getting an operator even if it means only a one-man operation at first. But remember that the operator must have business to live and only by use of the airport by the people can he make a buck, fast or otherwise. Interest, not backed up by action, is a starvation ration.

Get your group into the problem of putting the airport itself into a stabilized position in the city government. Don't let it be an orphan. The best tool for this purpose, we believe, is an active and interested non-salaried legally-authorized airport board composed of men recognized as leaders in the community. If your group will push such an airport board or commission with the mayor and city commission, you can probably get it set up.

Then don't quit. Get the board to help on the problem. If an operator can't be found, perhaps they will come to the conclusion that with a subsidy of a small amount per month to cover the management duties, an operator can get started. The amount so spent will be easier to get than full salary for an additional employe. Perhaps your board can get an operator elsewhere to put in a one-man subsidiary operation, relying on it to give him increased use of his equipment and a wider field for selling.

Let your larger group help out by organizing flight breakfasts, hangar dances and model contests.

Don't give up and don't let the doctor give up. The board and your civic group looms much larger in the skeptical eye of the public than one poor, lone operator trying singlehandedly to crack the shell of sales-resistance.

Frankly, perhaps, we've been too long in the telling, but we've done it in the belief that where aviation has more or less died on the vine, it is harder to build it up than it would be to activate it in a town that was getting an airport for the first time.

### For Better Concessions

**QUESTION: What liability does the city or the airport have in the operation of an airport restaurant by a concessionaire?**

ANSWER: That is a legal question which we could not attempt to answer. We would recommend that the subject be explored by your city legal department. At the same time you should have a determination as to the jurisdiction of your local agency (perhaps the Health Department) over such a restaurant if it is outside the city limits.

No matter, of course, where that jurisdiction lies, whether city or county, your own best interests are served if you, as airport manager, will be critical as to sanitation, garbage and housekeeping. It is to your interest to keep the standards of operation of your concessionaire so high as to assure good public use of the restaurant. The legal protection may lie in requiring the carrying of adequate public liability insurance; the city's department of health may protect you against violation of local ordinances. But only your own interest and attention can bring a concessionaire's standards to a point well above average if the concessionaire is not ambitious enough to do it himself.

### Non-Aviation Revenue Sources

**QUESTION: About every other time I pick up an aviation magazine I see something about selling. Now I**

**know about selling planes, selling rides, selling instruction, and those things of an aeronautical nature (although I surely could learn more about that) but I'm interested in non-aeronautical selling. What can be sold or rented of that nature on an airport?**

ANSWER: We see what you mean. A lot will depend on the airport—its degree and type of use, its area of population served, its proximity to the center of that population, and its facilities for housing or providing sales and distribution.

Bill Brown of the CAA is sitting here in the office, and between us we're going to engage in the mental exercise of remembering everything we've ever seen sold of a non-aeronautical nature on an airport. Not all of these or any number may be feasible on one airport, but some airport has sold each of these either through concessions or management's sales. Here goes the list, not alphabetical, and we'll bet there are a lot we haven't heard of. If you know of any others, we'd be glad to hear from you:

Meals, snacks, and beverages.
Food service meals to airlines.
Box lunches for workmen.
Package liquors.
Soft drinks (retail and wholesale).
Hay, grains, cotton, rice, seeds and other agricultural products.
Chickens, chicks, and eggs.
Young pigs.
Electricity.
Water.
Mineral and oil rights.
Newspapers and periodicals.
Cigarettes, cigars, and allied tobacco products.
Gifts and novelties.
Clothing and accessories.
Candy and gum.
Cut flowers.
Cosmetics, combs, and other notions.
Shoestrings.
Cameras and photo supplies.
Jewelry.
Insurance.
Automobile gasoline, oil, and grease.
Barber and valet service.
Storage for property — baggage lockers and check stands.
Advertising.
Telephone and telegraph service.
Rest-room services—pay toilets.
Shoe shines.
Sight-seeing areas (observation decks).
Drugs and sundries.
Hotel accommodations.
Beer and wines by the drink.
More potent liquors by the drink.
Movies.
Postcards (frequently of the airport itself).
Sanitary napkins.
Parking and storage space for cars—meter or lot.
Salvage lumber and materials.
Fence posts.
Fruit and vegetables.
Swims.
Recreation—bowling, billiards, golf.
Space in warehouses and buildings.
Burglar alarm systems (manufactured there).
Rent-a-car services.
Taxi and limousine services.
Face and bath towels.
Sod.
Pies (retail and wholesale).
Jellies and marmalades (wholesale and retail).
Conducted tours.
Heat and air conditioning.
Beauty shop services.
Postage stamps.
Merriment and entertainment (pin ball machines, night clubs, and roller rinks).
Art (your portrait drawn by an artist).
Poison (for dusting and spraying).
Travelers checks.
Money orders.
Radios.
Photos.
Recordings.
Homes.
Luggage.
Oil drums.
Junk.
Dance tickets.
Sporting goods.
Groceries, meats, and fish.


# PRESENTING...The New NARCO Panel for Beechcraft Bonanzas

THE new NARCO VTA-2 Transmitter which provides high-power transmission on all private aircraft VHF frequencies, including two ground control channels is now available in an attractive single package that combines the transmitter, the receiver, and the Omni **all on one panel!** Now you can equip your Beechcraft Bonanza with the lowest-priced Omni for static-free communication, navigation and ILS localizer approach, **and at the same time have all controls match those of the Bonanza.** Also, individual NARCO units are available for immediate delivery for installation in any type of private or executive aircraft.

TWELVE-VOLT INSTALLATIONS - - - - - $716.75
EQUIPMENT COST INCLUDES: TRANSMITTER, RECEIVER, OMNI, LOCALIZER, 12-VOLT POWER SUPPLY.

*See a demonstration of this Omni at the*

AIRCRAFT SALES Company

MEACHAM FIELD — FORT WORTH 6, TEXAS

SERVICE GUIDE FOR FLIERS —

# WHERE to STOP

WEST VIRGINIA

**Wood County Airport** — Parkersburg, West Virginia

Located 8 miles from Parkersburg, West Virginia, 6 miles from Marietta, Ohio. On the beautiful Ohio River. 4,000 ft. hard surfaced runways, best airport in this part of the country. Specialized service for transient pilots, hotel reservations, transportation, weather station, repair station, Gulf aviation products. Make this your STOP when flying EAST or WEST, NORTH or SOUTH.

C. L. McElroy, Manager

**Southwest Parachute Co.**

Government-Approved
Certificate No. 2408

Complete Parachute Service on All Makes

AUTHORIZED SALES & SERVICE DEALER

IRVIN PARACHUTES

LOCATED ON GARLAND AIRPORT
Dallas Texas

Mailing Address: Garland, Texas

# CLASSIFIED ADVERTISING

SOUTHERN FLIGHT'S CLASSIFIED ADVERTISING RATES ARE 5c per word (minimum rate $2)

All classified advertising will be placed in the first issue closing after receipt of order. Classified forms close on the 15th of the month preceding date of issue. All Classified Advertising Prepaid

SOUTHERN FLIGHT
Box 750 Dallas, Texas

### AIRCRAFT WANTED

POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas, and 475 Fifth Avenue, New York City, have purchasers for all types of aircraft. No charge for listing your ship for sale. Write for details, describing your airplane.

### AERONCA

AERONCA SEDANS: 15 available. 1948 seaplane, No. 1267HL has 165 hours. Two-way radio, Stall warning. EDO floats, also land gear. EDO maintained. All bulletins complied November. Licensed March, relicense on sale. Top condition. $4,700. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

### BEECH

D-17-S STAGGERWINGS: Many available. No. 1281VL has 52 hours total on airframe and Wasp Jr. Engine. Full blind, Bendix ADF, fuel analyzer, many extras. Beautiful red and cream hand rubbed, waxed. Perfect. Asking $10,000. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

BONANZAS: 32 available from $5,500. No. 697BL Model A-35 has 100 hours on new 1949 engine; full blind, Lear ADF, Narco VHF and Omnirange; sunshades, curtains, $9,500. 1949 Model A-35 No. 859IAL has total 163 hours, standard equipment. Asking $9,000. Make offer. Apply POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

BEECH TWINS: 26 available. 1946 D-18-C No. 81182L has new engines with 61 hours total time. Six passenger seats. Fully equipped, many extras. Hydromatics. $25,000. 1946 D-18-S plush seven place has had all engine maintenance at Pratt & Whitney. Full blind and radio, including ship-to-shore phone. New rubber throughout, including deicers, wipers. Built-in $CO_2$ extinguishing system. Hydromatics. Extras. Asking $38,500. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

TWIN ENGINE BEECHCRAFT: Corporation will sacrifice low time, Deluxe, executive, clean, 7-place job. Relicensed November 1st, 210 hours since airframe and engines majored. Full Airline equipment including Omni facilities. Will consider low time four-place Bonanza or Navion in trade. Write or wire c/o SOUTHERN FLIGHT, P. O. Box 750, Dallas 1, Texas.

### BELLANCA

CRUISAIRS: 20 available. 1947 No. 75426L has 350 hours. Aeromatic just overhauled, primary blind, two-way VHF, outside baggage door, small fins, heavy cylinder flanges. $3,000. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

### CESSNA

WANTED CESSNA, 140 or 170, 1948 or 1949, all metal preferred, must be bargain, send full details with your bottom price, Paul Hargis, Box 716, Austin, Texas.

CESSNA 170S: 20 available. 1948 No. 4508VL has 84 hours. Two-way radio, rate-of-climb, turn-and-bank, McCauley propeller. November license. $3,750. Consider trade late Ercoupe. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

CESSNA 195S: 7 available. 1949 No. 4472VL has 177 hours. Full blind instruments, special ADF, custom upholstery, recording tachometer. One owner and pilot. Like brand new. $9,750, including central U. S. delivery. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

CESSNA TWINS: Large selection. No. 52390L has zero time on airframe, constant speed propellers since overhaul; zero time full blind instruments; 118:30 hours on engines total. Beautiful interior. All bulletins. Best modifications. Always civilian. Always hangared. VHF, LF, Bendix ADF. $3,000. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

1947 CESSNA 140. 3-place, 2-way radio, loop, metal prop and extra instruments, etc. Exceptionally clean, $1,295. Better Used Airplanes for less. J. Hudson, Highland Park, Inc., Route 7, Dallas, Texas, E6-2885.

### ERCOUPE

1946 ERCOUPE, metal prop, 2-way radio, loop, beacon marker, manifold pressure gauge, B&T, clock, rate of climb and many other extras. Low time and very clean. If you intend to buy an Ercoupe you won't turn this one down at $875. Better used airplanes for less. J. Hudson, Highland Park, Inc., Route 7, Dallas, Texas, E6-2885.

ERCOUPES: 101 from $995. No. 94880L has 226 hours. Deluxe 1946 Model, green glass, cabin heater, always hangared. Excellent. $1,075. 1947 No. 95721L has 140 hours. McCauley propeller, two-way radio, loop, August license. $1,300. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

### GRUMMAN

WIDGEON AMPHIBIANS: 14 available. No. 9313HL, Model G-44, has 345 hours since airframe overhaul, 165 hours total new engines. Full blind instruments. Gear, radio overhauled November. Bargain $7,625. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

GOOSE AMPHIBIANS: 4 available. No. 60274L has 70 hours since complete overhaul and rebuilding airframe and engines. Six-place plush cabin. Full lavatory. Full blind instruments. Auto pilot. VHF. New ADF. Deicers except installation of boots. Cruises 155. Beautiful white with green trim. Exceptional buy at $33,500. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

### HOWARD

HOWARD DGA-15S: 19 available. 1944 No. 63027L has total 398 hours since new. Recovered 1948. Full blind instruments, flares, spare parts, tools, manuals. $2,775. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

### JOHNSON ROCKET

JOHNSON ROCKETS: 4 available. 1947 No. 61212L has 135 hours. Aeromatic propeller, primary blind instruments, two-way Bendix radio, May license. $3,250. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

### LOCKHEED

LOCKHEED 10's & 12's: Large selection. 12-A, 67161L has no time since complete overhaul airframe, engines, propeller. Six passenger cabin. Fully painted gray, green trim. Full blind, ADF. Bargain. $11,500. 10-E, 19149L has 125 hours airframe and 390 hours engines since overhaul. Ten place cabin. Hydromatics. Airline instruments and radio including Sperry auto pilot. Deicers. Fast retracting gear. No corrosion, dents. Beautiful. $18,900. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

### LUSCOMBE

LUSCOMBE 8-E's & 8-F's: 30 available. 8-E 1946, No. 1854KL has 145 hours. New Federal skis. Always hangared. $1,400. Offers considered. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

LUSCOMBE DELUXE SILVAIRE 8C: 75 hp. Continental, fuel injector, auxiliary wing tanks, wheel pants, clock, sensitive altimeter, rate of climb, turn and bank, navigation and instrument lights, Scott tailwheel, radio receiver with intercom, transmitter, fixed and trailing antenna, battery and wind generator, lock, blue trim, relicensed and recovered October, 1949, excellent cross country and instrument plane, $1,095, Paul Hargis, Box 716, Austin, Tex.

### NAVION

NAVIONS: 35 available. North American, No. 212L, 1946 has 160 hours. Standard plus two-way radio. $4,000. 1948 205 hp. Ryan No. 4420KL has 115 hours total. Aeromatic propeller, primary blind instruments, two-way radio. Outstanding value at $6,550. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Tex.; or 475 5th Ave., N. Y.

### PIPER

PA-11 PIPER extra good. $775. J. Hudson, Highland Park, Inc., Rt. 7, Dallas, Tex., E6-2885.

### REPUBLIC

SEABEES: 43 available. 1946, No. 6342KL has 175 hours since engine overhaul. All bulletins complied November, new stainless cables throughout. 110V outlet and hull pump. Steerable tailwheel. Extra instruments. No corrosion. Bargain $1,350. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

### STINSON

STINSONS: Many available. 1947 Station Wagon, No. 9715KL has 185 hours. August license. Primary blind instruments. Stall warning. Exceptional $2,775. Inquire POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Avenue, New York City.

### SWIFT

SWIFT 85's & 125's: 33 available. 1946 85, No. 81554L has 210 hours. Beech propeller, radio, extra instruments, July license. Asking $1,000. 1946 Temco 125, No. 79197 has 285 hours. Metal hatch spinner, two-way radio, extra instruments. $1,775. POWERS & GEORGE, Aircraft Brokers, 505 No. Ervay, Dallas, Texas; or 475 Fifth Ave., New York City.

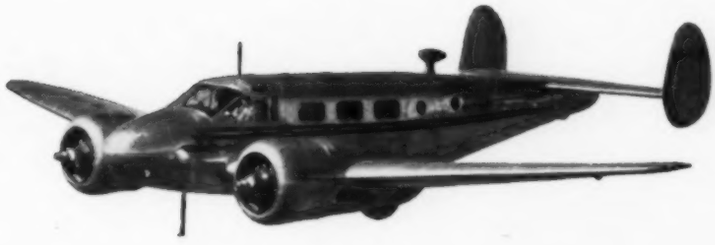
## BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

### Beechcraft 35

The Beechcraft Bonanza cruises at 170 mph, carries four people in its comfortable cabin. Range is 750 miles; top speed, 184 mph. It combines safety, ruggedness, comfort, economy, speed and performance — is equipped for day, night, and instrument flight.

### Beechcraft 18

The twin-engine Beechcraft Executive Transport is relied upon all over the world for fast, dependable performance. This 200-mph plane carries 7 to 9 passengers in luxurious comfort — can be operated readily out of small fields.



# They outsold all others

## in their respective classes during 1949

# Beechcraft

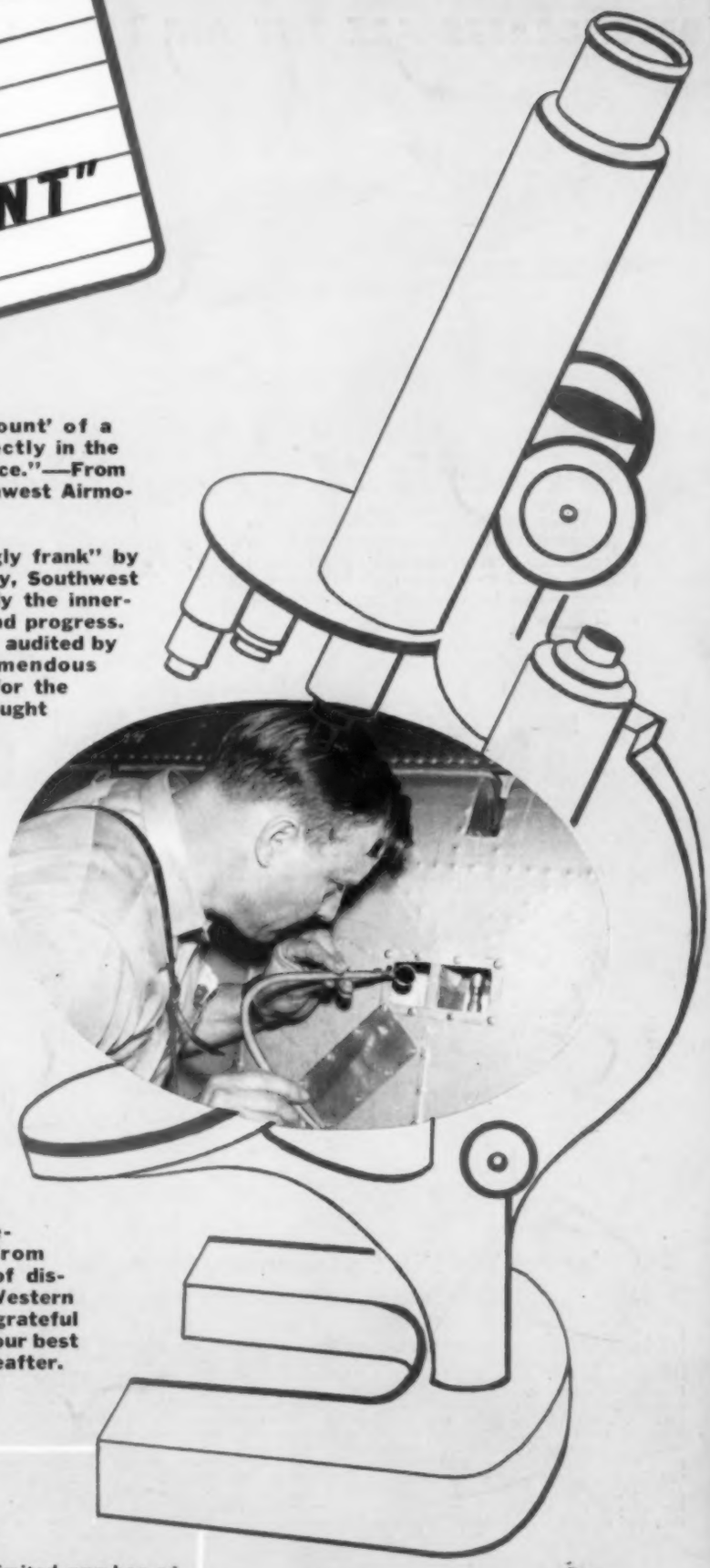
**for the TOPS in Performance, Strength, Speed, Style, Safety and Comfort**

**Get the facts about Beechcrafts from one of these friendly Beechcraft Distributors**

**In the U. S. —** ALABAMA—Southern Airways Company, Birmingham . . . ARKANSAS—Little Rock Aircraft Sales, Little Rock . . . CALIFORNIA—Pacific Aircraft Sales Company, Burbank & Oakland . . . COLORADO—Midwestern Aircraft Company, Colorado Springs, Intermountain Aviation, Inc., Denver . . . DELAWARE —Atlantic Aviation Service, Wilmington . . . FLORIDA—Airplane Sales Division, Butler Company, Tampa . . . GEORGIA—Southern Airways Company, Atlanta . . . ILLINOIS—Airplane Sales Division, Butler Company, Chicago . . . INDIANA—Roscoe Turner Aeronautical Corporation, Indianapolis . . . IOWA—Hunter Flying Service, Cedar Rapids . . . KANSAS—Topeka Aircraft Sales and Service, Topeka; Harte Flying Service, Wichita . . . KENTUCKY—Owensboro Aviation, Owensboro . . . LOUISIANA—J. D. Reed Company, Inc., New Orleans . . . MASSACHUSETTS—Atlantic Aviation Corporation, Bedford . . . MICHIGAN—Francis Aviation, Lansing . . . MINNESOTA—Gopher Aviation, Inc., Rochester . . . MISSOURI—Fabick Aircraft Company, St. Louis . . . NEBRASKA—Prairie Airways, Inc., Lincoln & Omaha . . . NEW JERSEY—Atlantic Aviation Corporation, Teterboro . . . NEW MEXICO—Cutter-Carr Flying Service, Inc., Albuquerque NEW YORK—Page Airways, Inc., Rochester . . . NORTH CAROLINA—Hawthorne Flying Service, Greensboro . . . OHIO—Ohio Aviation Company, Vandalia . . . OKLAHOMA—Aircraftsmen, Inc., Oklahoma City; Tulsair Distributors, Inc., Tulsa . . . OREGON—Flightcraft, Inc., Portland . . . PENNSYLVANIA—Wings, Inc., Ambler . . . SOUTH CAROLINA—Hawthorne Flying Service, Charleston & Columbia . . . TENNESSEE—Cook's Aero Service, Alcoa; Capitol Airways, Inc., Nashville . . . TEXAS—Tradewind Airport Corporation, Amarillo; J. D. Reed Company, Inc., Dallas & Houston; G. E. Penn, Longview; Alamo Aviation, Inc., San Antonio . . . UTAH—Altair, Inc., Salt Lake City . . . WISCONSIN—Anderson Air Activities, Milwaukee . . . WYOMING—Casper Air Service, Casper.

**. . . and Abroad —** ANGOLA—SOREL, Luanda . . . ARGENTINA—Will L. Smith, S.A., Buenos Aires . . . BELGIUM—Intair, Ltd., Antwerp . . . BRAZIL —Companhia Carnasciali Industria e Comercio, Rio de Janeiro . . . CANADA—World Wide Aviation Agencies & Sales, Inc., St. Johns, Quebec . . . CHILE—Bunster y Bezanilla, Ltda., Santiago . . . CHINA—Wah Chang Trading Corporation, Shanghai . . . CUBA—Dr. Gustavo S. de Bustemante, Havana . . . EGYPT—Misrair, S.A.E., Cairo . . . FRANCE—Victor Helfenberger, S.A. Somatex, Paris . . . INDIA—Indamer Co., Ltd., Bombay . . . IRAN—Habib Sabet, Teheran . . . MEXICO—Jorge Pasquel, Mexico, D.F. . . . MOROCCO—Airco, Tanger . . . NETHERLANDS—Technische Handelmij, Hollinda N.V., The Hague . . . PARAGUAY—Nicolas Bo, Asuncion . . . PERU—Inter-Continental Trade Co., S.A., Lima . . . PUERTO RICO—West Indies Airways, San Juan . . . SIAM—Siamese Airways Company, Ltd., Bangkok . . . SOUTH AFRICA—Aviation Corporation of Africa (Pty) Ltd., Johannesburg . . . SWITZERLAND—Groupement Suisse de Representation Aeronautique, Neuchatel . . . TURKEY—Kontioto Turkish Company, Ltd., Istanbul . . . URUGUAY—Pike and Co., Ltd., Montevideo.

# A REPORT ON SAC's "BLOOD COUNT"



"The statistical 'blood-count' of a company is reflected directly in the health of its customer service."—From A Decade of Growth & Progress (Southwest Airmotive's 10-year financial report).

In a 10-year survey, termed "amazingly frank" by plane owners and leaders in the industry, Southwest Airmotive Company has revealed publicly the innermost details of its financial condition and progress. Here, in charts and figures from records audited by Certified Public Accountants, the tremendous sacrifices and investments necessary for the gaining of a relatively small profit are brought into cold, clear focus.

This study proves beyond the shadow of a doubt that Southwest Airmotive is a healthy organization, a fact vitally important to YOU as a plane owner, pilot or buyer of parts and supplies — because:

**ONLY A SERVICE AGENCY WITH THOROUGH GOING INTERNAL HEALTH CAN CONSISTENTLY DELIVER GUARANTEED, HEALTHY SERVICE TO THE CUSTOMER! IT PAYS TO DEAL WITH A PROVEN WINNER.** (This is, of course, an age-old fact applying in every field of endeavor, whether the firm concerned be a crossroads grocery, a department store, a fixed base operator — or what-have-you.)

Southwest Airmotive success is rooted deeply in an 18-year history of square-dealing and superior workmanship. From these roots has sprung the patronage of discriminating flying folk throughout the Western Hemisphere. For this we are proud and grateful —and, for this, we will continue to exert our best efforts in 1950, and in every year thereafter.

*A limited number of copies of A DECADE OF GROWTH & PROGRESS are available upon request. Write for your copy today.*

"THE FLAT RATE COMPANY"

E S N W

**Southwest Airmotive Co.**

CAA Approved Repair Station No. 195 | LOVE FIELD, DALLAS